“I THINK I JUST SAW ANOTHER VERSION OF IT”: AN INVESTIGATION OF PRODUCT PLACEMENT - AD CONGRUITY AND EXPOSURE TIMING ON PRODUCT RECOGNITION AND ATTITUDE

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THESIS
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ABSTRACT

This study investigates whether adding peripheral webpage ad for a product that is placed in an online sitcom affects audiences’ recognition of and attitude toward the product. Because the ad and placement may serve as primes for each other, effects of timing of the ad (relative to the appearance of the product) were also assessed. Findings demonstrate that recognition of the product is higher when the placement and webpage ad are congruent than when the placement and ad are incongruent. Results also show that adding a webpage ad can increase recognition of the placed product in the video, and partially influences attitude towards the product. Product congruence appeared to have no main effect on attitude towards the product. However, attitude towards product varied in different timing only when products were incongruent in the video and in the ad such that attitudes were significantly lower when the ad and placement were exposed concurrently compared to when only the placement was exposed. Implications are also discussed.
To Father and Mother
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CHAPTER 1

INTRODUCTION

Product placement and online advertising are important business tactics and are growing rapidly each year. Product placement based on online services such as TV apps is considered by some to be a trend in the future (Mafe, Blas, and Tavera-Mesias, 2010). In addition, online advertising revenues increase steadily each year: In 2011, Internet advertising revenues in the US exceeded those of cable television, and are still rapidly increasing (IAB Internet Advertising Revenue Report, 2013). Various studies have been done on either product placements or online advertising, yet limited research can be found studying the two forms of advertising together (Lin and Chen, 2013). However, when online advertising revenues increase, and when more and more young Americans prefer to watch videos online through PCs and tablets instead of on TV (Purcell, 2010), it is important that television networks pay attention to online advertising as a new revenue breakthrough; it is also vital for advertisers to adjust their online advertising to most effectively complement the video content. However, little is known about how online advertising and product placement should be combined to potentially achieve synergistic effects, and about whether or when such influence is beneficial to advertisers.

Limited research has explored the relationship between product placement and online advertising; however, there have been studies on related issues which could provide a basis for expectations of placement-ad synergy. Previous research has shown that when watching videos on a TV app simulator, positive product reviews appearing on the edge of the screen increased
evaluations of the placed products in the video (Lin and Chen, 2013). However, product reviews would not be considered paid messages of the product; advertising is characterized by a paid sponsor, something which can cause people to respond with more skepticism or counterarguing than other communication about a product (Faber, Duff, and Nan, 2012). In addition, having visually the same product from the placement displayed in the ad might matter in terms of product information processing due to perceptual priming (Zimbardo and Leippe, 1991). Additionally, in their study, all product placements and respective text messages were shown concurrently (product descriptions and reviews appeared on the edge of the screen only when the product appears in the video). However, some research (Campbell et al., 2013; Boerman et al., 2014) indicates that different message exposure timing, such as a disclosure about sponsored content appearing at the beginning or at the end of the show may moderate or facilitate the audience’s information processing.

The current study fills the research gap by studying the combination of product placement and webpage ads. Specifically, I investigates how the relationship between products placed in a video and products featured in the webpage ads surrounding the video influence memory and attitude toward the product; and whether the timing of ad exposure (in relation to the placed product) influences the audience’s processing of the placed product.
CHAPTER 2

LITERATURE REVIEW

2.1 Product Placement

Product (brand) placement is the paid inclusion of branded products or brand identifiers through audio and/or visual means within mass media programs (Karrh, 1998). Previous research on product placement has looked at the effectiveness of product placement (embedded advertising) in different contexts, such as in a movie (e.g. D’Orio, 1999), in a TV show (e.g. Fitzgerald, 2002), or in a video game (e.g. Lee, and Faber, 2007). Most studies on audience responses to product placements were focused on cognitive effects, particularly memory-related measures (e.g. Russell, 2002; Lee and Faber, 2007; Reijmersdal, 2009). Fewer studies have addressed affective outcomes such as attitude and liking (e.g. Howard and Barry, 1994; d’Astous and Chartier, 2000; Chang, 2002) or conative outcomes such as purchase intention (e.g. Goldberg and Gorn, 1987).

In most cases, product placement studies examine how stimulus factors (e.g. program type, audio/visual modality) or individual-difference factors (e.g. brand familiarity, persuasion knowledge, involvement and/or interactions with the program) influence cognitive, affective, or conative outcomes. For example, Russell (2002) found that modality (visual/audio) and plot interact with each other in terms of recall of the placed product, such that visual placements were better remembered if they were congruent with the plot content, but such effect was not found for auditory placements. The majority of previous studies exploring placements’ cognitive
effects found that memory for placed products were positively related to the level of salience (salience was typically achieved by placement positions in the scene, or by the degree of integration of a placement with program content) of placements (Lee and Faber, 2007; d’Astous and Chartier, 2000, Gupta and Lord; 1998). Attitudes toward placed products are determined by more complex factors such as consumers’ attachment to the characters (Russell and Stern, 2006), or mood thematic congruity induced by program content by the time audiences were exposed to placement stimulus (Howard and Barry, 1994). Generally, attitudes toward product placements are higher when audiences are positively associating themselves with the program, especially when program and placements are thematically congruent (Russell and Stern, 2006; Howard and Barry, 1994). Some studies explore more than one outcome in one study, for example, measuring both memory and attitude toward placements. In those studies, similar results were found: brand/product attitude and memory are usually negatively related; the higher the degree of integration of a placement within a scene, the higher the liking of the placed product, but the lower its recall (e.g. d’Astous and Chartier, 2000; Reijmersdal, 2009).

Previous research on product placement has investigated the topic within an isolated frame (e.g., how the location of a placed brand in the show influences brand memory) and did not explore how stimuli in and beyond that frame combine to influence product placement effects. In recent years, product placement research has started to consider the effectiveness of product placements in a broader frame of context. For example, while other placement research has shown negative effects (e.g. Russell, 2002), Yoon, Choi, and Song (2011) found that multi-
(versus single-) tasking mitigated an intrusive placement’s potential brand-damaging effect. They argued that multitasking caused cognitive load and led to a heuristic-driven (versus elaboration-driven) information processing. Consequently, multitasking viewers perceived intrusively integrated placement as more salient than well-integrated placement, and when evaluating the brand at a later time, would merely react to the vivid image of the brand that easily came to mind. Lin and Chen (2013) found that simultaneously exposing product messages (e.g. positive online review) together with products placed in a TV show provided stronger advertising effects and led to better attitude and stronger purchase intention. They attributed this to media richness and message complexity theories that people are more satisfied when messages are received from multiple media or sources than from a single medium because multiple media information gathering reduces the vagueness and uncertainty of messages (Daft and Lengel, 1984).

2.2 Congruity

Congruity refers to the relationship between elements based on relevancy and expectancy (Heckler and Childers, 1992). Relevancy is defined as material pertaining directly to the meaning of the theme and reflects how information contained in the stimulus contributes to or detracts from the clear identification of the theme or primary message being communicated; Expectancy refers to the degree to which an item or piece of information falls into some predetermined pattern or structure evoked by the theme (Heckler and Childers, 1992). Within this definition, different studies conceptualize congruity in various ways. For example, relationships between an
ad (e.g. a healthy food ad) and the context (e.g. health magazine) in which it appears (Moorman, Neijens, and Smit, 2002; Lee and Faber, 2007), visual (e.g. airline ad with a person sitting comfortably in the seat) and verbal elements (e.g. written message of seating comfort) of ads based on theme relevancy and expectancy (Heckler and Childers, 1992). In this study, I operationalize congruency as the relationship between products placed in the video and products featured in the webpage ads. To clarify further, the key feature for a product placement is a branded product (Karrh, 1998). Therefore, brand and product type should be the key factors of relevance between a placement in the video and an ad on a webpage. Similarly, these traits are considered expected when they are consistent with audience’s knowledge of the exposed product. Hence, the congruent condition means that products featured in the webpage ad and placed in the show are perceptually (same in appearance) as well as conceptually (belong to same product category and same brand) congruent. The incongruent condition means products placed in the show are perceptually different (different in appearance) and conceptually different (belong to different product category and brand) from the product featured in the webpage ad.

One potential issue when operationalizing congruence as having both perceptual and conceptual similarity is that the higher similarity could also mean that there is the potential for effects similar to repetitions. However it doesn’t necessarily mean that the congruent product would have more positive judgment than the incongruent product because the congruent product has more frequent repetition than the incongruent product. Looking back to previous research on repetition effect, it is not hard to find that there were mainly two ways to operationalize
repetition. One way was to treat the repeated stimuli as one of the components of the main task such as letting participants to read a list of words and have the target letters repeatedly presented for several times (Jacoby and Dallas, 1981). The other way was to treat the repeated stimuli as occurring peripherally such that little or no attention would be spared to it, for example having melodies repeat several times while instructing participants to treat the melodies as distractors (e.g. Anand and Sternthal, 1991). However, in the current study, when a product placement appears in a video, the audience would have direct attention to the placed product; when a product appears in a webpage ad on that video website, the audience would have peripheral attention to it since their main task is to watch the video instead of watching the ad. In addition, although exposing congruent products in both a video and an ad have some overlap with repetition, these two exposures (in the video and in the ad) are different in types (product placement vs. advertisement) with different context. Even though participants would process these two exposures due to their perceptual and conceptual linkages, it is in doubt that participants would process these two exposures as ‘identical’ to each other, which is how previous research operationalized repetition.

2.3 Congruity and Memory

Previous research basically explained how congruity influences memory from two perspectives. It is generally argued that the salience of an object can increase memory for this object (Heckler and Childers, 1992; Moorman, Neijens, and Smit, 2002; Lee and Faber, 2007). The difference lies in the argument of which object is more salient: the congruent one or
incongruent one. Some studies found that people have better memory for incongruent placements compared to congruent placements (Lee and Faber, 2007; Russell, 2002). They argue that incongruent information is distinctive and salient during the encoding phase of memory. People try to evaluate and make sense of the existence of incongruent information. Thus, it elicits more elaboration and facilitates subsequent recall (Mandler, 1982). However, other studies have found that congruent information is remembered better than incongruent information (Moorman et al., 2002; Rodgers, 2003). For example, Rodgers (2003) found that thematically congruent sponsored content (e.g. travel agency ads on travel-related website) were recognized better than those that were incongruent. It could be explained through the priming effect (Zimbardo and Leippe, 1991), which says that people may be primed perceptually/conceptually, so when a message that is congruent with the primed one appears, people are more likely to notice the message in line with their primed goals, and therefore make congruent information more salient and easier to locate in memory. In addition, information processing fluency theory could also explain why congruent messages are better memorized: processing fluency is enhanced by additional exposure since additional exposure reduces the vagueness and uncertainty of messages and sequentially leads to more fluent processing and better memory (Anand and Sternthal, 1991).

2.4 Congruity and Attitude

According to Anand and Sternthal (1991), processing fluency not only enhance memory, but also leads to more favorable attitudes toward the target due to the ease of processing activated by associative links in memory. In this sense, congruent contents can be more
favorably evaluated because congruent content have more associative links in terms of theme relevance and expectancy compared to incongruent content. As a result, congruent content are more easily processed compared to incongruent content thus are more likely to be positively evaluated (Rodgers, 2003). Many examples can be found in research studying the linkage between sponsored content and the context in which sponsored content appears (Rodgers, 2003; Becker-Olsen, 1998). I will discuss these examples in detail in the next section.

2.5 Congruity and Product Placement

Most of the product placement congruity studies look into congruity between the placed product and context in which product is placed (Lee and Faber, 2008; Russell and Stern, 2006; Rodgers, 2003). Lee and Faber (2008) studied effects of product placement on brand memory in a video game context. They found that brand recall was influenced by congruity between the product category of the branded product in the game and the content of the game such that highly incongruent brands were better recalled than moderately incongruent brands or highly congruent brands. Rodgers (2003), however, found that sponsor recall was higher for a congruent sponsorship linkage (webpage content and sponsored brand within the webpage) than an incongruent sponsorship linkage. She argued that in relation to content relevance, a message will be more accessible and be easily processed to the extent that the relevance between contents is high versus low.

On the attitudinal side, Rodgers (2003) found that attitude toward the sponsored content was higher for a congruent sponsorship linkage compared to an incongruent sponsorship linkage. She
attributed this to associative links between webpage context and sponsored content. They argued that an attitude would be more accessible to the extent that the association strength between webpage context and sponsored content are relevant. In addition, Becker-Olsen (1998) found similar effect: attitudes toward sponsors were more positive when sponsor-sponsee link are logically relevant compared to when the link is illogically bonded in news clippings.

2.6 Influence of Exposure Timing on Product Memory and Attitude

Recent research on product placement disclosure reveals another potentially important factor that influences persuasion effectiveness—disclosure (exposure) timing. Research shows that different timing of sponsorship disclosure (i.e., disclosing the existence of a product placement prior to, concurrent with, or after the product placement appears on screen) in a TV program leads to different levels/types of information processing as well as different memory and attitudinal effects (Campbell, Mohr, and Verlegh, 2013; Boerman, Reijmersdal, and Neijens, 2014). The reason why timing might influence memory and attitudinal effects is because priming plays an important role in processing product placement, and timing is an important moderator in priming effect (Boerman, Reijmersdal, and Neijens, 2014).

2.7 Priming

Priming effect refers to the fact that the positioning of a predictor variable can make that variable more salient in future exposure to the respondent and imply a causal relationship with other variables (Podsakoff, Mackenzie, Lee, and Podsakoff, 2003).

Boerman et al. (2014) found that critical processing of the sponsored content only happens
when a disclosure is displayed prior to, or concurrent with the sponsored content. Such an effect is not found when sponsorship disclosure is shown at the end of the TV program. They used priming theory to explain that in the ‘prior’ and ‘concurrent’ situations, audiences are primed by the disclosure notification; thus, they are more likely to pay attention to the sponsored content and process it as a persuasive message and thus may activate persuasion knowledge to critically evaluate the content. Such an effect is not found in the ‘after’ situation because when the disclosure is displayed at the end of the program, audiences are not primed by the disclosure. Therefore, the disclosure in the ‘after’ situation is less likely to activate audience defenses for a persuasive message (i.e. paid placement) because it occurred after the placement was processed (Boerman et al., 2014). While research would seem to indicate that the priming effects of a paid peripheral ad would occur for the placement, it is possible that the placement may actually prime the peripheral ad when the ad appears after the placement.

Research demonstrates that ignoring (passive avoidance) is also a common strategy when they encounter an ad (Speck and Elliot, 1997). The act of ignoring is largely caused by our limited processing capacity (Lang, 2000) and this act of ignoring may induce processing of ads which might negatively affect subsequent evaluation of these ads. This process is named “distractor devaluation” (Duff and Faber, 2011). While engaged in a search or focused activity (e.g. searching for specific news information on a webpage) and ads were exposed concurrently, ad avoidance and distractor devaluation occurred. Duff and Faber (2011) found that distractor brands that were visually similar (similar color) to the task were rated more unfavorably than
those that were not similar to the task because participants need to inhibit them more strongly in order to accomplish the task.

2.8 Hypotheses and Research Questions

One of the purposes of the present study is to examine in the context of a video watching website, how congruity between products placed in the video and products featured in the webpage ads influence product memory and attitude.

For product memory in this study, it is expected that product recognition will be higher when products placed in the video and exposed in the webpage ad are congruent (versus incongruent). The congruent content (the placed product and product in webpage ad) might serve to prime one another regardless of timing. Because there is a good match between the congruent content, the primed information could be more easily encoded into the schema that the preexisting information is stored, yielding higher recognition and greater recall compared to incongruent information (Lee and Faber, 2007). Therefore, audiences may have better recognition of a product that is shown congruently in the video and on the webpage ad. Thus we hypothesize that:

**Hypothesis 1:** Recognition for products will be higher when the product placed in the video and the product in the webpage ad are congruent compared to when they are incongruent.

For product attitude, since the congruence between the product in the video and product in the ad makes a closer associative link between the placement and the ad compared to incongruent products, audiences could more easily process products that are congruent in the
video and in the ad. Such an ease of processing may lead audiences to generate more favorable attitudes toward congruent products compared to their attitudes toward incongruent ones (Anand and Sternthal, 1991). Therefore we hypothesize that:

**Hypothesis 2: Attitudes toward products will be higher when the product placed in the video and the product in the webpage ad are congruent compared to when they are incongruent.**

The current study also looks into webpage ad exposure timing. Previous research has only looked at product placement disclosure timing, however, the effect for an ad are likely to be different than for a disclosure. The purpose of the present study is to find out whether specific exposure timing of webpage ad will influence recognition and attitude toward the product.

In the current study, if explained by a priming effect, it is expected that among four conditions (webpage ad exposed prior to, concurrent with, after, or not exposed with respective product placement), product recognition and attitude are the highest when webpage ad exposure is concurrent with its respective product placement (‘concurrent’ condition) than when the webpage ad is exposed after the product placement (‘after’ condition) and when the ad is exposed prior to product placement (‘prior’ condition). Recognition and attitude would be the lowest when no ad is exposed during the entire video viewing process (‘no ads’ condition).

The rationale for this hypothesis is priming. In this study, the product is exposed to the audience in two different forms (product placement and webpage ad). The one that is exposed earlier can be seen as the prime and the one that is exposed later can be seen as the object being primed. After audiences are primed by either placement version or the webpage ad version of
product, when audiences are exposed to whichever version comes after (either placement or ad), the product image becomes more salient to the audience and thus may be more memorable than other, non-primed products. According to processing fluency theory (Anand and Sternthal, 1991), processing fluency of the target is enhanced by additional exposure. In turn, this increased fluency leads to more favorable attitudes toward the target. In this study, exposure to both the placement and ad may enhance the processing of product information and sequentially led to better attitude towards product.

However, priming effects might fade away as time passes (Roskos-Ewoldsen, Roskos-Ewoldsen, and Carpentier, 2009), which means that it is possible that the potential for a priming effect in the ‘prior’ and ‘after’ condition could fade because there’s a time lag between the exposure of the product in a placement and exposure of the product in a webpage ad. However, such ‘fade-away’ won’t happen in the ‘concurrent’ condition. Therefore, placement priming probably has a larger effect on recognizing the product in the ‘concurrent’ condition compared to the ‘prior’ and ‘after’ condition. While the ease of recognizing the primed product functions as information processing fluency, audiences are more likely to generate a positive attitude to the product when placement and respective webpage ad are shown concurrently.

However, ad avoidance and potential consequences such as distractor devaluation (e.g. Duff and Faber, 2011) may occur, in which case the outcomes would be different. In the current study, since participants’ main task was to watch the video, webpage ads became distractors during the video watching. Such distractors may interfere with audiences’ focused task (Duff and Faber,
watching the video. According to Duff and Faber’s (2011) finding, ads with product images that are congruent with products placed in the video might be even more interfering than incongruent ones because these products are perceptually (same product appearance) and conceptually (same brand and product type) congruent in the video and in webpage ads. When a congruent ad and placement are exposed concurrently, participants might need more effort to inhibit the ad. Therefore what might happen is that in the ‘concurrent’ condition, audiences avoid the ad more and devaluate the product in the ad more compared to other conditions. Since there is no research dealing with timing of ads and placements, it is unclear which effect (priming vs. avoidance and devaluation) would occur when different ad exposure timings occur, thus instead of making hypotheses, I propose the following research questions:

**Research Question 1:** Will there be differences in terms of product recognition when different ad exposure timings are applied?

**Research Question 2:** Will there be differences in terms of attitude towards product when different ad exposure timings are applied?
CHAPTER 3

METHODOLOGY

3.1 Participants

133 participants (N=133; 23.3% males, 75.9% females, 0.8% not reported) were recruited through the advertising research system at a Midwestern university. The average age of the participants was 19.5 (SD=2.34). Participants were offered 1 extra credit for participation. Participants were randomly assigned into four groups based on which of the four webpages they were automatically directed to after agreeing to participate in the experiment on electronic consent forms. Because the webpage was randomly directed, the website would redirect participants to a new webpage with different ad–placement combination each time when participants refresh the page. Therefore, data of the participants who refreshed the video webpage during the video watching process were eliminated. The study was executed under Institutional Review Board approval of the university (IRB approval number: 14809)

3.2 Independent Variables

To test the hypotheses, a 2 (congruent vs. incongruent)*4 (before, concurrent with, after, no ads) mixed design experiment is used in the study (see Table 1).

**Within-subject manipulation - congruity.** Congruence in this study means products featured in the webpage ad and placed in the show are perceptually (same in appearance) and conceptually (belong to same product category and same brand) the same. Incongruence means the products placed in the show are perceptually (different in appearance) and conceptually
(belong to different product category and brand) different from product featured in the webpage ad. An example of congruent ad – placement relationship is shown in Figure 1.

**Between-subjects manipulation – ad exposure timing.** Participants were randomly assigned to one of the four conditions (the number of participants in each group: 33, 34, 33, 33) regarding the webpage ad exposure timing: 1) ‘prior’ condition: the ad for the product is exposed prior to its placement in the video; 2) ‘concurrent’ condition: the ad for the product is exposed concurrent with its placement in the video; 3) ‘after’ condition: the ad for the product is exposed after its placement in the video; 4) ‘no ads’ condition: the ad for the product is not exposed during video watching. Note that while the timing of ad exposure differs across conditions, products placed in the video stay the same across conditions. Each ad was exposed for 30 seconds. In ‘prior’ and ‘after’ conditions, webpage ads of respective placed products were exposed 30 seconds before/after product placements. Figure 4.1 to Figure 4.4 illustrates detailed flow charts for each condition.

3.3 Stimuli

**Video stimuli.** The video chosen for this study was episode 2 ‘The Big Bran Hypothesis’ (about 20 minutes in length) of *The Big Bang Theory (TBBT)* Season 1. Reasons for choosing this sitcom are: 1) a sitcom is a type of TV series that provides strong evidence of product placement effectiveness across product categories (Russell and Stern, 2006); 2) *TBBT* is the highest rated and viewed scripted show in the 18-49 demographic (Bibel, 2013), so the popularity and overall positive rating should lead to fewer individual preference differences that
might influence evaluation of the placed product in the video. Out of 133 participants in this study, 131 (98%) reported their ages as between 18-26 which is included in the 18-49 demographic range. So the overall positive rating reported in Bibel research (2013) is also relevant for participants in the current study.

**Product placement stimuli.** Three product placements were chosen from episode 2 of *The Big Bang Theory*. The chosen placements remained the same across different ad exposure timing conditions. However, because the content of the show used is fixed, it is very hard to control duration of particular product placement. In this study, the exposure lengths of three product placements were different. The product shown in Figure 2.1 was exposed for 122 sec; the product shown in Figure 2.2 was exposed for 32 sec; the product shown in Figure 2.3 was exposed for 67 sec.

**Ad stimuli.** In the ‘prior’, ‘concurrent’, and ‘after’ conditions, three webpage ads with products that were **congruent with** product placements in *The Big Bang Theory* (see Figure 2), additionally three webpage ads with products that were **incongruent with** product placements in *TBBT* were shown on the webpage (see Figure 3) during video-watching period. In the ‘no ads’ condition, no webpage ads were exposed during the entire video-watching period. All six products were chosen from products used in the show that did not have prominent, known branding, and were from different product categories; brand name of each product was fake name.

**Website stimuli.** A video viewing website was developed for this study (see Figure 1). By
developing this website, we could push designed ads onto the webpage, manipulate webpage ad exposure timing, and group placement exposures and ad exposures into four timing groups (prior, concurrent, after, no ads). In addition, the video player for this study was designed without ‘full screen mode’ because by nullifying ‘full screen mode’, participants would have equal chance to be exposed to webpage ads without having to put the ads on top of the video itself. The website was named FunVideo and had similar settings as YouTube in order to simulate real video website.

3.4 Procedure

Participants were randomly assigned into one of four groups. Each participant logged onto the FunVideo website and watched The Big Bang Theory. Figure 4 shows the detailed video-watching flow charts for each condition. After watching the episode, participants answered a questionnaire, measuring their memory and attitude toward each of the six products (three congruent and three incongruent). In order to disguise the research purpose and to assess other potential factors that might influence results, we also asked participants questions about their opinions on segments of the webpage and the content of TBBT, liking and familiarity toward the episode they watched during the experiment, liking and familiarity toward TBBT and each of the main characters, general opinion on advertisements/product placements, advertising skepticism, hypothesis guessing queries, and demographic questions. The experiment lasted about 30 minutes. Questionnaires for the experiment are attached in the Appendix.
3.5 Dependent Variables

**Product recognition.** Memory for the product was measured by product recognition. Recognition for products placed in the video and recognition for products in webpage ads were measured separately. After watching *The Big Bang Theory*, six images of products were shown one by one. Under each image, participants were asked, “did this product appear in the episode of The Big Bang Theory you just watched?” and “Did this product appear on the right side of the webpage that you just saw?”. Each question was answered by ‘Yes’ or ‘No’. Correct answer to each question was coded as one and incorrect answer to each question was coded as zero. Recognition test for product exposures in the video were computed and averaged for each participant, and so were product exposures in webpage ads.

**Product attitude.** The present study uses measurement developed by Crites, Fabrigar, and Petty (1994). Participants were instructed ‘Please check the boxes that best describe your opinions toward the above product’. Four pairs of items (dislike/like, negative/positive, bad/good, undesirable/desirable) were given. A 7-point Likert scale was used for each criterion. Attitude score for congruent and incongruent products were computed and averaged for each participant.

3.6 Other Variables Being Measured (Covariates)

**Episode liking.** Previous research found that one’s preference for products placed in a video could be influenced by their preferences for the video (e.g. Russell and Stern, 2008). In the current study, episode liking was used as a covariate in assessing product attitude and recognition. Participants were asked ‘how much do you like this episode’. A 7-point Likert scale
was used from ‘dislike very much’ to ‘like very much’.

**Episode familiarity.** Previous research found that familiarity toward a target has a positive effect on recognizing and evaluating the target (e.g. Norton et al., 2007; Reis et al., 2011). In the current study, episode familiarity was used as a covariate in assessing product attitude and recognition. Participants were asked ‘Please rate your familiarity to the episode’. A 7-point Likert scale was used from ‘I have never watched this episode before’ to ‘I have watched this episode before and can remember every detail in it’.
CHAPTER 4

RESULTS

Congruity (congruent vs. incongruent) and ad exposure timing (prior to, concurrent with, after, and no webpage ads) were entered into a mixed measures ANOVA with familiarity and liking of the episode 2 of *The Big Bang Theory* used as covariates. Tests of homogeneity of variance showed feasibility of ANOVA for most variables across conditions. However, homogeneity of variance was violated for recognition of incongruent products in ads across different exposure timing conditions, $F(3,128)=5.21, p<.05$. Therefore, Welch F Test and Games-Howell test were used in this particular case. Episode liking and episode familiarity were controlled as covariates because episode liking and familiarity might influence people’s recognition and evaluation (Zajonc, 1968) of products in the video and in webpage ads. The mean score for episode liking was $M=5.60$, $SD=1.36$ (see Table 2.1). The mean score of the episode familiarity was $M=2.61$, $SD=2.12$ (see Table 2.1). The covariate, episode liking, was significantly related to attitudes toward products, $F(1,126)=9.97, p<.05$, such that the more participants like the episode, the higher their attitudes toward products. Episode liking was not significantly related to other variables (see Table 2.2). The covariate, episode familiarity, was significantly related to recognition for products placed in the video, $F(1, 126)=3.97, p<.05$. Episode familiarity was not significantly related to other variables (see Table 2.2). Table 3 contains descriptive data from the experiment.

**H1.** Hypothesis 1 predicted that recognition for products would be higher when the product
placed in the video and the product in the ad were congruent compared to when they were incongruent. Correct recognition was coded as one and incorrect recognition was coded as zero. Recognition scores for products in the video were then computed and averaged for each participant, and so were recognition scores for products in webpage ads. There was a significant main effect of congruity on recognition for product placed in the video, $F(1, 126)=4.29, p<.05$. To be more specific, product recognition was significantly higher when the product placed in the video and the product in the webpage ad were congruent ($M=0.71, SD=0.30$) compared to when they were incongruent ($M=0.56, SD=0.35$) irrespective of ad exposure timing differences. Therefore, **H1 was partially supported.** Figure 5 is an illustration of recognitions for products placed in the video between congruent and incongruent conditions.

The difference between recognition for congruent products ($M=0.31, SD=0.31$) and for incongruent products ($M=0.29, SD=0.34$) in webpage ads was not significant, $F(1, 126)=0.23, p=0.64$. Therefore, **H1 was partially not supported** regarding the recognition for products in webpage ads. Figure 6 is an illustration of recognitions for products in webpage ads between congruent and incongruent conditions.

**H2.** Hypothesis 2 predicted that attitudes toward products would be higher when the product placed in the video and the product in the webpage ad were congruent compared to when they were incongruent. Attitude score for congruent and incongruent products were computed and averaged for each participant. The difference between attitudes toward congruent products ($M=4.14, SD=1.09$) and attitudes toward incongruent products ($M=4.14, SD=1.05$) was not
significant, F (1, 126)=.06, \( p=.80 \). Therefore, \textbf{H2 was not supported}. Figure 7 is an illustration of product attitudes between congruent and incongruent conditions.

\textbf{RQ1.} Research question one posed that whether there would be differences in terms of product recognition when different ad exposure timings were applied. No ad exposure timing difference on recognition for product placed in the video was found, F (3, 126)=1.08, \( p=.36 \) (see Figure 8). For products in webpage ads, there were significantly different effects of ad exposure timing on recognition, F (3, 126)=7.73, \( p<.01 \). Figure 9 is an illustration of recognition for products in webpage ads across exposure timing conditions.

\textbf{Post-Hoc.} A one-way ANOVA was used to examine how ad exposure timing influenced recognition of products in webpage ads. There were significant differences between groups for congruent products (F (3, 129)=5.81, \( p<.01 \)); correct recognition for products was significantly lower in the ‘no ads’ condition compared to ‘prior to’, ‘concurrent with’, and ‘after’ condition (M= 0.13 vs. M= 0.40, 0.36, 0.36). No significant difference on correct recognition was found between the ‘prior to’, ‘concurrent with’, and ‘after’ conditions.

For correct recognition for incongruent products in webpage ads, since the homogeneity of variance was violated (F (3, 129)=4.97, \( p<.01 \), Welch F Test and Games-Howell Post Hoc Test were used (see Table 5). The result showed that there were significant differences between groups for incongruent products correct recognition (F(3, 67.34)=10.31, \( p<.01 \)). Correct recognition for products was significantly lower in ‘no ads’ condition compared to ‘prior to’, ‘concurrent with’, and ‘after’ condition (0.09 vs. 0.35, 0.33, 0.37). No significant difference on
correct recognition was found between ‘prior to’, ‘concurrent with’, and ‘after’ conditions. Figure 9 is an illustration of recognition for products in webpage ads across exposure timing conditions.

**RQ2.** Research question two dealt with whether there would be differences in terms of attitude towards product when different ad exposure timings were applied. When ignoring the influence of congruity on product attitude, no ad exposure timing difference on product attitude was found, F (3, 126)=2.03, \( p=.11 \). However, when both congruity and exposure timing were applied, significant product attitude differences were found between different exposure timings, depending on whether the product was congruent or incongruent. A post hoc test was conducted (see Table 6). Figure 10 is an illustration of product attitudes across exposure timing conditions.

**Post-Hoc:** A one-way ANOVA was used to examine how ad exposure timing influenced product attitudes. For congruent products, there was no significant difference between different exposure timings, F (3, 129)=.77, \( p=.513 \). However, for incongruent products, there was significant difference between different exposure timings, F (3, 129)=3.736, \( p<.05 \). To be more specific, attitudes toward products were significantly lower in the ‘concurrent’ condition (M=3.70, SD=.95) than in the ‘no ads’ condition (M=4.53, SD=.94).

Although not hypothesized, interaction effects between product congruity and ad exposure timing on recognition and attitude were also calculated. No interaction effect was found between product congruity and ad exposure timing on recognition for products placed in the video, F(3, 126)=.83, \( p=.48 \), and on recognition for products in webpage ads, F(3, 126)=.16, \( p=.93 \). No
interaction effect was found between product congruity and ad exposure timing on product attitudes, F(3, 126)=.1.35, p=.26.

In summary, recognition for products was higher when they were congruent. Interestingly, this result only was for increased recognition that the product had appeared in the video, not that it had appeared in an ad. Product congruity was not a predictor for attitudes toward products. Correct recognition for products in webpage ads was significantly lower in ‘no ads’ condition compared to ‘prior to’, ‘concurrent with’, and ‘after’ condition. No difference in recognition for products placed in the video was found between different ad exposure timings. For product attitude, ad exposure timing only influenced attitudes toward incongruent products such that attitudes were significantly lower in the ‘concurrent’ condition compared to in the ‘no ads’ condition.
CHAPTER 5

DISCUSSION

To date, limited research has studied the effectiveness of product placement and online advertising when they are exposed to the audience at the same time although this type of exposure is not new for audiences who prefer to watch videos online instead of on TV. Extending past work on product placement and online advertising, we put product placement and online advertising into one frame and explored the effect of this new combination on the audience’s video watching experience. In this study, I tested potential relationships between product placements and advertisements and their effects on product attitudes and recognition in an online video environment. I also looked at the potential exposure timing for webpage ads during the video and tried to explore which ad exposure timing could lead to better product recognition and attitude.

Results reported in this study indicate that placement and webpage ad congruity is a factor to influence recognition of placed product. In the same webpage frame, the placed products and the ad that advertised the same product placed in the show (congruent) appeared, making the product more explicitly recognizable than incongruent (ad featured a different product than shown in the study) ones. The mean recognition score for congruent products placed in the video was significantly better than chance, however, the recognition scores for incongruent products were either at or below chance guessing levels. This is in line with some researchers’ proposal that congruent information is more salient and is better recognized than incongruent content.
(Moorman et al., 2002; Rodgers, 2003). This may suggest that when people are involved in a task (e.g. watching a video on a website that also has peripheral ads), they tend to process information that is relevant to their current task more fluently compared to information that is irrelevant to their main task. Such an explanation might also help to understand why we found that product congruity was not a predictor for recognition of products in ads. While it was assumed that product congruity should have equal effects on recognition of products in the video and products in ads, the result showed it only affected placement recognition. It might because participants perceived ads as peripheral information even if products featured in these peripheral ads were relevant to the placements in the video. Thus although participants might have had the prerequisite to process the product in the ad more fluently when the congruent product was also exposed in the video, they perceived the product information in the ad as less relevant (vs. the congruent product information in the video) to the video content and paid less attention. As a result, product congruity less effectively influenced recognition for products in ads (vs. recognition for products in the video). These findings are also in line with Lin and Chen’s (2013) finding that the increase in recognition occurs when the other source can provide relevant information directly, which reduces the time and effort needed to obtain, recall, and retrieve the relevant information.

Hypothesis regarding the influence of product congruity on product attitudes was not supported. This might due to the relationship between product placements chosen for this study and the characters that used these products, such that though main characters in the show used
the chosen products, these characters did not show their preferences to these products. This guessing is in line with the principle of congruity such that changes in evaluation are always in the direction of increased congruity with the existing frame of reference (Osgood and Tannenbaum, 1955). When the character (or the video being used) and the placements were associated (e.g. characters were using products placed in the video), if an audience’s existing attitude towards the character (or the video) was polar (positive/negative), the audience’s attitude towards the placements would lie on the same side with the attitude towards the character (or the video). The result of the covariate, episode liking, supported this guessing; episode liking was positively related to attitudes toward products, $F(1,126)=9.97$, $p<.05$, such that the more participants like the episode, the higher their attitudes toward products.

Interestingly, I found that there was a negative effect on attitude for products that were incongruent in the ‘concurrent’ condition, even though audiences were not explicitly able to recognize the existence of the ad (the mean recognition score for incongruent products in ads was significantly lower than chance). Thus it is unlikely that it is a more conscious negative response due to initiation. This corresponds to Raymond et al. (2003) proposal that distractor devaluation is largely unconsciously shaped. In an advertising context, when people are engaged in an entertainment concentrated task like watching a video of a character-driven sitcom, people's memory of the ad placed beside the video-player window will likely be insufficiently encoded; whereas liking of the distracting (non-task relevant) ad will likely be lower than that of a completely novel ad. Such an effect was not found in congruent products. It might be that
congruent information requires less time and effort to process; therefore the ease of processing leads to more favorable evaluation of the information. This is in line with information fluency theory (Anand and Sternthal, 1991) that processing fluency is enhanced by additional exposure and sequentially leads to more fluent processing and more favorable attitudes.

Findings from this study contribute directly to brand strategy and ad placement strategy. Ad exposure can be indexed by awareness as measured by recognition (e.g. Lang 2000). In the hierarchy of effects, awareness often precedes interest, desire and eventually, action (Barry 1987). For brands that look for programs to sponsor and look for advertising to increase brand awareness, instead of considering product placement and online advertising as different strategies, they may consider a ‘sponsorship package’ such that they place the brand ad on the same webpage where the video that contains the placement is launched. This study also has practical implications for online targeting services. Since the result shows that congruent contents in video and in webpage ads may increase recognition, the online targeting service could think of a way to identify and extract product information (e.g. product, brand logos) in a video, and push product information onto the webpage that the video is launched. Such strategy is in line with Lin and Chen’s (2013) TV app design in their study except that they only push text messages about the product placed in the video. The processing of these text messages belongs to cognitive processing whereas in our study webpage ads helps people to fluently process product info perceptually.
CHAPTER 6
LIMITATIONS AND FUTURE RESEARCH

As mentioned in the discussion section, this study failed to find any difference on product attitude in terms of congruity. The explanation was that none of the products exposed in the video and in webpage ads had a clear positive or negative attribute that could prime participants to evaluate the product in a certain direction. Yi (1990) found that congruity might influence attitude towards the ad under the condition that either a specific positive or negative attribute is primed in the context where ads are exposed. In other research, researchers found that ads placed in a context that elicited positive responses were evaluated more positively, and ads placed in a context that elicited negative responses were evaluated more negatively (Murry, Lastovicka, and Singh, 1992). However, when looking at the manipulation on ad content in our study, there was no strong persuasive message in the ad that lead audience to think about certain positive (or maybe negative) attribute of the product. Therefore, audience could not be primed to have positive (or negative) response to the product. In the future, we could add a positive message that may elicit positive (or maybe negative) response in webpage ads and test product attitude.

This study did not find significantly different processing of products between ‘prior’, ‘concurrent’, and ‘after’ timing conditions. One potential limitation that might cause this result is that a 30-second time duration between placement exposure and ad exposure is too long for audiences to process the ad-placement linkage. It might be that priming were off or other items intervened so that the processing of products was no longer more fluent. Results for this study
also indicate the possibility: post hoc tests indicate that for incongruent products, significant differences in recognition for products in ads and attitude toward the product were found between ‘concurrent’ condition and ‘no ads’ condition, but were not found between ‘prior’ (or ‘after’) condition and ‘no ads’ condition. It might be that ‘fade-away’ (Roskos-Ewoldsen, Roskos-Ewoldsen, and Carpentier, 2009) occurred and audiences’ processing was not effectively influenced by prior exposure due to the long duration. This suggests that for future research on ad-placement linkage, the duration between ad-placement exposure should be shortened or even be cut off (e.g. ad is exposed immediately before or after the product placement).

Another limitation of this study is the control of product placement. Because the content of the show used is fixed, it is very hard to control duration of particular product placement. In this study, durations for the three product placements were 32 sec, 67 sec, and 122 sec. To see if different lengths of placement exposure times (M=73.67) affected outcomes I did an additional analysis on timing. Results showed that there were no significant differences in product attitude between products that were placed for 32 sec versus 67 sec, t(99)=-1.52, p=.13. However, there was a significant difference on product attitude between products that were placed for 32 sec and for 122 sec (t(99)=2.70, p<.05), and between products that were placed for 67 sec and for 122 sec (t(99)=3.76, p<.05).

Another limitation caused by the operation of this study is that it is unlikely to completely rule out effects due to repetition versus congruity. In ‘prior’, ‘concurrent’, and ‘after’ conditions, congruent products were exposed to participants twice albeit in different usage contexts (in the
form of product placement and the form of webpage ad), but incongruent products were only exposed once (in the form of a webpage ad). In the ‘no ads’ condition, congruent products were exposed once (in the form of a product placement), but incongruent products had zero exposure. Although there were no attitudinal differences between congruent and incongruent products, congruent products placed in the video were recognized better than the incongruent products. What might happen was that, despite the influence of product congruity, the higher exposure frequency of the congruent products (compared to incongruent products’ one time exposure) might also have had positive effect on participants’ product recognition. This explanation is in line with previous research indicating that more stimulus repetition leads to higher recognition (Jacoby and Dallas, 1981). Future research could find a way to distinguish, which, either product congruity or repetition, has primary influence on product recognition.

Difference between perceptual congruity and conceptual congruity were also not specifically considered in this study. Physical aspects of the stimuli (e.g. color, shape, etc.) that facilitate participants’ performance would be categorized as ‘perceptual’; if participant’s performance is enhanced by attending to the meaning or information traits of the stimuli (e.g. meaning association), it would be treated as ‘conceptual’ (Schmitter-Edgecome, 1999). The difference between perceptual and conceptual aspects of a stimulus would influence participants’ processing of the products in different ways. For future research, it would be interesting to look at how different congruity types, perceptual congruity and conceptual congruity, differently influence participants’ processing of the products.
Although not reported, ad skepticism was also assessed, because different advertising types might trigger different levels of skepticism (Boerman, Reijmersdal, and Neijens, 2014). In this study product placements and webpage ads were exposed in different sequences in different ad exposure timing conditions, it was thought that different exposure timings would lead to different levels of ad skepticism, and thus might result in different levels of product recognition and attitude. However, no effects were found. One major issue is that the measure of ad skepticism actually measured participants’ long-term skepticism toward advertising in general (e.g. webpage ads, product placement, TV commercials, etc.). The questions leaning toward long-term opinions about advertising in general might have eliminated potential differences in momentary skepticism caused by ad exposure timing and advertising type (product placement and webpage ad). In the future, instead of ad skepticism in general, we could ask ad skepticism at the moment. By asking participants their real-time skepticism, we might better understand which of the four exposure timings would cause people to respond with less/more skepticism and counterarguing.

While not investigated in the primary hypotheses, another variable that showed some interesting findings is the advertising type (product placement vs. webpage ad). Post-study analyses showed a significant main effect of advertising type (product placement vs. webpage ad) on product recognition, F (1, 127)=45.81, p<.05; and significant interactions between advertising type (product placement vs. webpage ad) and product congruity (congruent vs. incongruent), F(1,127)=5.14, p<.05, as well as between advertising type and ad exposure timing (prior, concurrent, after, or no ads conditions), F(1, 127)=4.67, p<.05. These results suggest that not
only do the conceptual and perceptual relationships between products in the video and in the ad matter for product recognition, the form in which the product is presented to participants also matters for their later recognition. In addition, ad type, as a potential new variable to look at, interacts with both product congruity and exposure timing to influence participants’ recognition, and might further influence other aspects of product information processing. It would be interesting to further dig into other potential effects of advertisement type in a video watching website context.

This study only looks into stimuli-induced factors (i.e. product congruity and ad exposure timing). It would also be interesting to look into individual differences factors. For example, research shows that analytic processors tend to encode more details of single focal items (Srinivasan, Srivastava, Lohani and Baijal 2009). Holistic processors are able to more widely process perceptual information from multiple objects (Goh, Tan and Park 2009). Will differences between analytic processor and holistic processor influence product recognition and attitude if webpage ad of product is exposed in different timing? To be more specific, will holistic processors process product better than analytic processors when webpage ad and placement of the product is exposed simultaneously; will holistic processor be faster in realizing relation between webpage ad and product placed in the video than analytic processors and how will it influence their evaluation towards the product? We hope to look into these questions and better understand individual differences on product/advertising processing therefore help advertisers to better compete in online media context.
REFERENCES


### TABLES AND FIGURES

Table 1 2×4 Mixed Experimental Design of the Study

<table>
<thead>
<tr>
<th>Ad Exposed</th>
<th>Congruent Ad Exposure</th>
<th>Incongruent Ad Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prior</td>
<td>X Ad → X Placement</td>
<td>Y Ad → X Placement</td>
</tr>
<tr>
<td>Concurrent with the Placement</td>
<td>X Ad + X Placement</td>
<td>Y Ad → X Placement</td>
</tr>
<tr>
<td>After the Placement</td>
<td>X Placement → X Ad</td>
<td>X Placement → Y Ad</td>
</tr>
<tr>
<td>No Ads Exposed</td>
<td>X Placement</td>
<td>X Placement</td>
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Table 2.1 Means and Standard Deviations for Episode Liking and Familiarity

<table>
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<tr>
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<tr>
<td>Episode Familiarity</td>
<td>5.60</td>
<td>2.12</td>
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Note: Episode familiarity and episode liking ratings are based on a 7-point Likert scale

Table 2.2 The Result of Between-Subjects Effects

<table>
<thead>
<tr>
<th></th>
<th>Product Attitude</th>
<th>Recognition for Products in Video</th>
<th>Recognition for Products in Ads</th>
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</thead>
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<tr>
<td>Episode Liking</td>
<td>9.97**</td>
<td>1.99</td>
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<td>Episode Familiarity</td>
<td>.58</td>
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Notes. F-value is reported for each dependent variable. * = p<.05, ** = p<.01.
<table>
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<th></th>
<th>Ad Prior to Placement</th>
<th>Ad Concurrent with Placement</th>
<th>Ad After Placement</th>
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<tr>
<td>Attitude (Congruent Ad)</td>
<td>4.23 (1.04)</td>
<td>3.91 (1.00)</td>
<td>4.17 (1.13)</td>
<td>4.24 (1.09)</td>
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<td>Attitude (Incongruent Ad)</td>
<td>4.18 (.97)</td>
<td>3.70 (.94)</td>
<td>4.14 (1.19)</td>
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<td>Recognition (Congruent Placement)</td>
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<td>.65 (.29)</td>
<td>.71 (.30)</td>
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<td>Recognition (Incongruent Placement)</td>
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<td>Recognition (Incongruent Ad)</td>
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<td>.33 (.35)</td>
<td>.37 (.34)</td>
<td>.09 (.17)</td>
<td>.29 (.34)</td>
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</table>

Note: Attitude ratings are based on a 7-point Likert scale. Recognition score ranges from zero to one.
Table 4 Results of Repeated Measures ANOVA

<table>
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<th>Product Attitude</th>
<th>Recognition for Products in Video</th>
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<tr>
<td>Congruity</td>
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<td>Ad Exposure Timing</td>
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<td>(Between-Subjects)</td>
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<td>Congruity×Ad Exposure Timing</td>
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<td>.83</td>
<td>7.73**</td>
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Notes. F-value is reported for each dependent variable. * = p<.05, ** = p<.01.
Table 5 Results of the Welch F Test and Games-Howell Post Hoc Test:
Effects of Ad Exposure Timing on Recognition for Incongruent Products in Ads

### Analysis of Variance

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<td>Within Groups</td>
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### Robust Tests of Equality of Means

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### Games-Howell Post Hoc Test: Multiple Comparisons

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<td></td>
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<td>.99</td>
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<td></td>
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<tr>
<td>Concurrent</td>
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<td></td>
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<tr>
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Table 6 Results of the Post Hoc Test:  
Effects of Ad Exposure Timing on Attitudes toward Products

Analysis of Variance

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<thead>
<tr>
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<tr>
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<td>Incongruence</td>
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Tukey HSD Post Hoc Test (Only for Incongruent Products)

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<tr>
<td>After</td>
<td>Prior</td>
<td>.97</td>
</tr>
<tr>
<td></td>
<td>Concurrent</td>
<td>.31</td>
</tr>
<tr>
<td></td>
<td>No Ads</td>
<td>.42</td>
</tr>
<tr>
<td>No Ads</td>
<td>Prior</td>
<td>.69</td>
</tr>
<tr>
<td></td>
<td>Concurrent</td>
<td>.007</td>
</tr>
<tr>
<td></td>
<td>After</td>
<td>.42</td>
</tr>
</tbody>
</table>
Figure 1 Webpage Stimuli
Figure 2 Congruent Advertising Stimuli

Figure 2.1

Figure 2.2

Figure 2.3

Figure 3 Incongruent Advertising Stimuli

Figure 3.1

Figure 3.2

Figure 3.3
Figure 4 Condition Flow Charts

Figure 4.1 The ‘Prior’ Condition

Figure 4.2 The ‘Concurrent’ Condition

Note: (1) In Figure 4.1, time gap between the end of placement X exposure and the start of ad X exposure was 30 seconds; (2) In Figure 4.2, ad X and placement X started exposing at the same time; (3) The number in each bracket refers to the amount of time the placement (or the ad) being exposed, for example, placement 1 was exposed for 122 seconds and ad 1 was exposed for 30 seconds; (4) The chart only shows the congruent placement-ad exposure.
Figure 4.3 The ‘After’ Condition

![Figure 4.3 The ‘After’ Condition]

Note: (1) In Figure 4.3, time gap between the end of placement X exposure and the start of ad X exposure was 30 seconds; (2) In Figure 4.4, no ad was exposed during the video watching; (3) The number in each bracket refers to the amount of time the placement (or the ad) being exposed, for example, placement 1 was exposed for 122 seconds and ad 1 was exposed for 30 seconds; (4) The chart only shows the congruent placement-ad exposure.

Figure 4.4 The ‘No Ads’ Condition

![Figure 4.4 The ‘No Ads’ Condition]
Figure 5 Recognition For Products Placed in the Video Across Conditions
(Product Congruity)

Note: The by-chance point for recognition should be .50. It is expected that 50 percent of people will correctly recognize the product placed in the video (score one) while another 50 percent of people will not correctly recognize the product placed in the video (score zero).
Figure 6 Recognition For Products in Webpage Ads Across Conditions
(Product Congruity)

Note: The by-chance point for recognition should be .50. It is expected that 50 percent of people will correctly recognize the product placed in the video (score one) while another 50 percent of people will not correctly recognize the product placed in the video (score zero).
Figure 7 Attitudes Toward Products Across Conditions
(Product Congruity)

Covariates appearing in the model are evaluated at the following values: Episode Liking = 5.60, Episode Familiarity = 2.61
Figure 8 Recognition For Products Placed in the Video Across Conditions  
(Ad Exposure Timing)

Note: The by-chance point for recognition should be .50. It is expected that 50 percent of people will correctly recognize the product placed in the video (score one) while another 50 percent of people will not correctly recognize the product placed in the video (score zero.
Figure 9 Recognition For Products in Webpage Ads Across Conditions
(Ad Exposure Timing)

Covariates appearing in the model are evaluated at the following values: Episode Liking = 5.60, Episode Familiarity = 2.61
Figure 10 Attitudes Toward Products Across Conditions
(Ad Exposure Timing)

Covariates appearing in the model are evaluated at the following values: Episode Liking = 5.60, Episode Familiarity = 2.61
APPENDIX: EXPERIMENT QUESTIONNAIRE

General Questions

Please type any thoughts that you had while watching the video (The Big Bang Theory Season 1 Episode 2).

How much do you like this episode?

Dislike very much | — | — | — | — | — | — | — | Like very much

Before participating in the study, have you watched this episode of The Big Bang Theory?

Yes  No

Please rate your familiarity to the episode.

I have never watched this episode before | — | — | — | — | — | — | I have watched this episode before and can remember every detail in it

Do you have normal or corrected to normal (with glasses/contacts) vision?

Yes  No

Instruction

On the next pages you will be rating elements, some of which appeared on the webpage, some appeared in the episode of The Big Bang Theory you just watched, others appeared both on the webpage and in the episode. Please rate the items based on your initial gut reaction of how much you like them and whether you think they appeared on the webpage or/and in the episode that you just watched.
Product Attitude and Recognition (the sequence of images is randomized)

![Image of a product](image)

More on LymON

Please check the boxes that best describe your opinions toward the above product.

Dislike | | | | | | | | | | Like

Negative | | | | | | | | | | Positive

Bad | | | | | | | | | | Good

Undesirable | | | | | | | | | | Desirable

Did this product appear in the episode of *The Big Bang Theory* you just watched?

Yes  No

Did this product appear on the right side of the webpage that you just saw?

Yes  No
Product Attitude and Recognition

Please check the boxes that best describe your opinions toward the above product.

Dislike  | | | | | | | | Like
Negative  | | | | | | | | Positive
Bad  | | | | | | | | Good
Undesirable  | | | | | | | | Desirable

Did this product appear in the episode of *The Big Bang Theory* you just watched?

Yes  No

Did this product appear on the right side of the webpage that you just saw?

Yes  No
Product Attitude and Recognition

Please check the boxes that best describe your opinions toward the above product.

Dislike | - | - | - | - | - | - | - | - | - | - | Like

Negative | - | - | - | - | - | - | - | - | - | - | Positive

Bad | - | - | - | - | - | - | - | - | - | - | Good

Undesirable | - | - | - | - | - | - | - | - | - | - | Desirable

Did this product appear in the episode of *The Big Bang Theory* you just watched?

Yes  No

Did this product appear on the right side of the webpage that you just saw?

Yes  No
Product Attitude and Recognition

Please check the boxes that best describe your opinions toward the above product.

Dislike | — | — | — | — | — | — | — | — | — | — | — | Like

Negative | — | — | — | — | — | — | — | — | — | — | — | Positive

Bad | — | — | — | — | — | — | — | — | — | — | — | Good

Undesirable | — | — | — | — | — | — | — | — | — | — | — | Desirable

Did this product appear in the episode of *The Big Bang Theory* you just watched?

Yes  No

Did this product appear on the right side of the webpage that you just saw?

Yes  No
Product Attitude and Recognition

Please check the boxes that best describe your opinions toward the above product.

Dislike | — | — | — | — | — | — | — | — | — | Like

Negative | — | — | — | — | — | — | — | — | — | Positive

Bad | — | — | — | — | — | — | — | — | — | Good

Undesirable | — | — | — | — | — | — | — | — | — | Desirable

Did this product appear in the episode of *The Big Bang Theory* you just watched?

Yes  No

Did this product appear on the right side of the webpage that you just saw?

Yes  No
Product Attitude and Recognition (Product 6)

Please check the boxes that best describe your opinions toward the above product.

Dislike  |  |  |  |  |  |  |  |  |  |  |  | Like

Negative |  |  |  |  |  |  |  |  |  |  |  |  | Positive

Bad      |  |  |  |  |  |  |  |  |  |  |  |  | Good

Undesirable |  |  |  |  |  |  |  |  |  |  |  |  | Desirable

Did this product appear in the episode of *The Big Bang Theory* you just watched?

Yes  No

Did this product appear on the right side of the webpage that you just saw?

Yes  No
Ad Skepticism

We can depend on getting the truth in most advertising.

Strongly agree | — | — | — | — | — | — | — | — | Strongly disagree

Advertising's aim is to inform the consumer.

Strongly agree | — | — | — | — | — | — | — | — | Strongly disagree

I believe advertising is informative.

Strongly agree | — | — | — | — | — | — | — | — | Strongly disagree

Advertising is generally truthful.

Strongly agree | — | — | — | — | — | — | — | — | Strongly disagree

Advertising is a reliable source of information about the quality and performance of products.

Strongly agree | — | — | — | — | — | — | — | — | Strongly disagree

Advertising is truth well told.

Strongly agree | — | — | — | — | — | — | — | — | Strongly disagree

In general, advertising presents a true picture of the product being advertised.

Strongly agree | — | — | — | — | — | — | — | — | Strongly disagree

I feel I've been accurately informed after viewing most advertisements.

Strongly agree | — | — | — | — | — | — | — | — | Strongly disagree

Most advertising provides consumers with essential information.

Strongly agree | — | — | — | — | — | — | — | — | Strongly disagree
Opinion of Product Placement/Advertisement in General

Please indicate your opinion of **product placement IN GENERAL**.

| Dislike | — | — | — | — | — | — | — | — | — | — | — | Like |
|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Negative | — | — | — | — | — | — | — | — | — | — | — | Positive |
| Bad | — | — | — | — | — | — | — | — | — | — | — | Good |
| Undesirable | — | — | — | — | — | — | — | — | — | — | — | Desirable |

Please indicate your opinion of **advertisement IN GENERAL**.

| Dislike | — | — | — | — | — | — | — | — | — | — | — | Like |
|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Negative | — | — | — | — | — | — | — | — | — | — | — | Positive |
| Bad | — | — | — | — | — | — | — | — | — | — | — | Good |
| Undesirable | — | — | — | — | — | — | — | — | — | — | — | Desirable |

Viewing Experience

In general, which of the following best describes your preferred screen size when watching videos on a webpage?

- Full screen (I don't like to see any other contents on the webpage while watching videos)
- Default viewing screen (I like to see other contents on the webpage while watching videos)
- I don't have specific preference on screen size when watching videos on webpage

Did you feel distracted by products placed in the episode that you just watched?

- Yes  
- No

Did you feel distracted by advertisements on the right side of the webpage?

- Yes  
- No

Did you feel that you avoided the ads on the webpage or did you find yourself paying attention to them?

- Completely ignored the ads | — | — | — | — | — | — | — | — | — | — | — | Paid total attention to the ads
How much do you like the overall settings of the webpage that you just saw?

Dislike very much | — | — | — | — | — | — | — | — | Like very much

**Demographic Info**

What is your gender?

- Male
- Female
- Other
- Prefer not to answer

How old are you? (Please input a number) ________________________________

What is your current status?

- Undergraduate student
- Graduate student
- Faculty/Staff
- Other (Please indicate) ________________________________

Which of below is your preferred (main) video-watching media?

- Television
- Computer
- Tablet
- Mobile Phone
- Movie
- Theater (If applicable)
- Other (Please indicate) ________________________________

Is English your native language?

- Yes  
- No
How would you classify yourself? (Check all that apply)

- American Indian or Alaska Native
- Anglo American (Caucasian/White)
- Asian American
- African American
- Hispanic or Latino
- Other (Please indicate) __________________________

What is your major? __________________________

In your opinion, what is the purpose of the survey?


Please type any additional comments below. When finished, please click to the end page.


