Demographic Congruency, Advertisements, and Television Shows: The Effect of Advertisement Viewing on Television Show Evaluation

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This thesis titled
Demographic Congruency, Advertisements, and Television Shows: The Effect of Advertisement Viewing on Television Show Evaluation

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ABSTRACT

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Demographic Congruency, Advertisements, and Television Shows: The Effect of Advertisement Viewing on Television Show Evaluation

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This thesis examines demographic congruency between television shows and advertisements and the effects that it has on program evaluation. Two groups of college-aged participants watched the same popular television show for their age group but some saw commercials targeted at them while others saw advertisements for products and services for elderly people. Theoretically based on Mandler’s discrepancy/evaluation theory, results showed that individuals exposed to demographically incongruent advertisements explicitly evaluated the television show less favorably than those that saw congruent commercials. Additionally, an implicit associations test found marginally significant and contrasting results where the demographically incongruent advertisements led to a higher liking among those who viewed them along with the show. The results, as well as potential explanations, are discussed.
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INTRODUCTION

Due to the nature of media processing, responses to any portion of media content could potentially affect the way we view the next, and so on, especially when processing continuously (see, e.g., Mandler, 1990). From reception to yielding (McGuire, 1968), the ways in which the content of television and other media programming affect viewers’ responses to embedded advertisements has a substantial history in the study of popular media (see, e.g., Coulter, 1998; Goldberg & Gorn, 1987; Gunter, Furnham, & Beeson, 1997). However, as products, such programs rely on evoking many similarly-desired responses for their continued production and distribution, and despite an array of evidence that programs-as-context can affect responses to commercials – which suggests that the reverse could also be true – it seems there is a largely ignored but potentially fruitful area of study that would be necessary to explore regarding the ways ads affect program processing, in providing a more complete understanding of the ways ads “work.” That is, because programs-as-context can modify responses to the ads, is it likely that responses to the commercials reciprocally influence responses to the show?

Perhaps the most probable candidates for such reciprocal effects on responses lie in the area of “priming” (Iyengar, Peters, & Kinder, 1982; Berkowitz, 1984), because, in day-to-day life, priming is an ongoing process of stimuli “preparing us” to process subsequent stimuli, independent of their perceived centrality (Ito & Cacioppo, 2000). In other words, watching a TV show could cause us to expect certain, congruous types of ads to appear in that show, and the ads that appear in a show could cause us to expect congruent programming. There are a variety of ways that ads can be “incongruent” as a function of the programming regarding a particular demographic. For instance, if a
mismatch exists between the target demographic for the ads and for the show, the ads should violate viewers’ expectations as constructed by the content of the show (see, e.g., Ito & Cacioppo, 2000; Kardes, 2001), potentially causing a negative response to the ads, due to a perceived (large) discrepancy between our expectations and “reality” (Mandler, 1990; Cardozo, 1965; Anderson, 1973).

Given that the same psychological mechanisms involved in building expectations about the show’s ads are at work when we’re watching the ads, the spots could reciprocally lead us to construct expectations about the show, in which case, the same type of negative reaction to the show should be evoked. In that vein, this thesis will focus on incongruence by target age in an attempt to better understand the way(s) in which age-incongruent advertisements can affect viewers’ attitudes and levels of favorability toward a show, examined via a two-condition, controlled laboratory experiment, wherein congruent and incongruent ads are shown with the same TV program, and responses to the shows are compared between the two groups.

Advertisers, network executives, producers, and program directors should all be interested in the answers to such questions in maximizing desired outcomes regarding the relationship between their advertisements and their programming. It stands to reason – in fact, most, if not all introductory advertising principles texts teach (e.g., Moriarty, Mitchell, & Wells, 2011; Kotler & Armstrong, 2013) – that ads within a given show are to be targeted at the program’s main demographic; for viewers outside of that particular group, those advertisements may seem “incongruent,” or “discrepant,” which could affect
TV programming consumption. This thesis will review relevant literature, outline the experiment, report the results, and discuss explanations for those results.
LITERATURE REVIEW

We know from previous research that emotional responses can be transferred between or among multiple stimuli, especially if they are seen as being associated with one another (Leventhal, 1980). Perhaps the most central such theory to the premise of the present study is Mandler’s (1990) Discrepancy/Evaluation Theory, which states that incongruities between what is expected and what is “real” evoke an evaluative and emotional response within the subject. Expected results are based on previous outcomes and organized in mental schema, or perceived causal linkages between/among attitude objects. Markus (1977) defined “mental schemata” as “cognitive generalizations about the self, derived from past experience, that organize and guide the processing of self-related information contained in the individual's social experiences,” and notes explicitly that “[o]nce established, these schemata function as selective mechanisms which determine whether information is attended to, how it is structured, how much importance is attached to it, and what happens to it subsequently” (p. 64).

In other words, we will subconsciously recall past experiences and, in turn, compare and contrast current events with those experiences as a means of understanding and evaluating the world around us. Through this comparison process, a connection is often made between the prior experience and the new occurrence (Markus, 1977). When these connections come together, they form a schema, which can then be associated with other elements, further expanding the connections among all nodes in related schemata. Mandler (1993) expands on the types of past experiences that can be used in the comparison process, which the author defines as values. The three types of values that
Mandler (1993) details are: innate, social, and structural. Innate values are those that occur naturally within a human and expand out from the fight or flight instinct. Individuals may have expectations about the sensation they would experience after eating a pleasant food or touching a hot stove based off of previous understandings of the feelings of pleasure and pain. Social values are ones that are socially constructed around the ways individuals act in certain situations. The context in the situation is a large determinant in social values as an individual is expected to act differently in formal and casual situations. Structural values are mental representations of objects and events that form expectations the basis of schema. Mandler (1993) does point out that these three categories are not mutually exclusive and that any one evaluation will be based off of multiple types of values.

Within Mandler’s (1990) theory, schema theory is expanded. Through the evaluation process, in comparing and creating schema, the individual can experience an emotional response, and the level of physiological arousal that the individual is currently feeling determines the intensity of that emotion.

An experiment by MacDowell and Mandler (1989) tested Markus’ (1977) theory by having participants play a video game for a number of hours to teach them expected outcomes. The researchers then changed the results for those actions and gauged participants’ responses using psychophysiological measurements and an explicitly-stated evaluation of emotional intensity by the participant. A significant difference in the participants’ responses as a function of the discrepant events was shown. Using Markus’s (1977) explanation of schema theory and processing information about the self,
it could be predicted that the evaluation of an advertisement related to one’s self would cause a discrepancy, which Mandler’s (1990) Discrepancy/Evaluation Theory would also suggest, given a sufficiently-incongruent stimulus.

Level of arousal is a key factor in Mandler’s (1990) Discrepancy/Evaluation Theory. As described by MacDowell and Mandler (1989), which is consistent with other “attribution theories” of emotion (Weiner, 1972; Averill, 1983), “Arousal does not automatically lead to emotional experience. Subjective emotions occur only when evaluations of the current situation are ‘affective.’ Such evaluations combine with arousal to generate emotional experiences” (p. 2). In other words, physiological arousal, in and of itself, which could otherwise be thought of as how awake or alert one is, does not constitute an emotion. Rather, arousal, it is argued, requires one to attribute and give meaning to the physiological state, in order for it to constitute affect.

Reconsidering the MacDowell and Mandler (1989) study, participants played a game in which they had previously understood what were expected/unexpected outcomes of specific events, and heart rate was measured during the discrepancies. It was shown that unexpected events created statistically significant heart rate increases within the participants. Having a similar measure of arousal as part of an experiment could greatly enhance our knowledge about the reasoning behind the outcomes (or potential lack thereof). Given that understanding, any manipulation within the laboratory could measure the participants’ levels of arousal as a way to better analyze the effects of a stimulus on participants, particularly in testing for the effects of discrepancies.
The Discrepancy/Evaluation Theory of Emotion has been used in various other publications to expand upon its uses. Mandler (1994) proposed how the theory could be used to better understand the human response to freedom (or lack thereof). Individuals will have expectations and understandings of what it means to live in a free society through media accounts, protests, and history. As those expectations are confirmed or broken, individuals will have an evaluative response that will manifest as an emotion.

The theory has also been used in a variety of disparate fields, including the evaluation of music (Gaver & Mandler, 1987), evaluation in close relationships (Berscheid & Ammazzalorso, 2001), and evaluation’s effects on the learning process (Mandler, 1989). Although no other studies have evaluated the effects of congruency and incongruency with regards to television shows and advertising, others have looked at the effects of incongruity amongst demographics in advertising research. One such study (Aaker, Brumbaugh, & Grier, 2000) had participants rate their attitudes towards advertisements targeted at three specific groups. The participants were separated into groups based off characteristics of skin color and sexual orientation. Therefore, the groups included heterosexual white, heterosexual black, and homosexuals of both races. The advertisements were then targeted at each of these three groups. The results showed that individuals disliked advertisements that were not targeted at them. These results give additional credence to the potential for participants in this study to evaluate the incongruent advertisements negatively and then associate that emotion with the television show with which they are paired. Other studies with similar designs (Forehand &
Deshpandé, 2001; Dimofte, Forehand, & Deshpandé, 2003) found comparable results with different types of groups.

A similar approach to Mandler’s (1990) theory is that of contrast and assimilation effects. The theory behind these effects states that individuals will compare a given stimulus with previously experienced, or primed, stimuli (Strack et al., 1993). In the case of a contrast effect, the participant will react to the stimulus by moving their opinion away from it, typically in a negative direction, whereas participants that use an assimilation effect will move their opinions towards the stimulus. For example, Parker, Bascom, Rabinovitz, and Zellner (2008) played samples of supposedly good and bad music to participants, but in some instances the bad music was played first and in others the good music was played first. In that experiment, the authors asked the participants to rate the music samples after each exposure, so that the first music sample would not be compared to anything whereas the second music sample would be compared to the first. The authors found that those participants exposed to bad music first viewed the subsequent good music more favorably than those that heard the good music first. Similarly, those participants that heard the good music first stated that they disliked the bad music more than those that heard the bad music first.

There have been numerous studies using this theory throughout the last century (Hovland, Harvey, & Sherif, 1957; Herr, Sherman, & Fazio, 1983; Martin, Seta, & Crelia, 1990; Bless & Schwarz, 2010) but no universal understanding of when individuals will contrast or assimilate has been found. There have been various elements isolated over time that are likely factors for understanding how and when individuals will
compare the stimulus and with what. One such factor in predicting if an individual will compare and contrast is if the stimuli are understood to be within the same category. The previous example from Parker, Bascom, Rabinovitz, and Zellner (2008) with the musical samples illustrates two ways that the stimuli may be categorized, temporally and utilization of the same sense. Stapel and Winkielman (1998) highlight three characteristics of a stimulus that individuals may use to determine whether to compare information and with what: context-target similarity, perceived distinctness of the context information, and relevance of the context information to the dimension under judgment. Many other studies have attempted to fully understand the contrast/assimilation phenomena but without strong operational definitions it is difficult to hypothesize relationships.

One study that does adequately define the element of categorization for media in a fashion similar to this thesis is Shen, Jiang, and Adaval (2010). For their study, the authors were testing the theory of processing fluency between advertisements and reviews. Processing fluency states that individuals will dislike a stimulus relatively more as it becomes harder to process, such as harder to read because of illegibility or strong color clashes. The study focused on two sets of advertisements and reviews that were either related or not. For example, one stimulus was an advertisement for popcorn and another was a review for a movie. In one condition, the advertisement for the popcorn specifically stated to enjoy the popcorn while watching the movie being discussed in the review and the other condition simply stated to enjoy the movie with no mention of the movie. An additional manipulation had one of the stimuli being difficult to read to see if
the difficulty in processing the information could then be related to the subsequent stimuli. That connection between the two stimuli produced statistically significant effects. In particular, if the two stimuli were related, the individuals assimilated the two opinions together while if the stimuli were unrelated, the individuals contrasted the information. Relating that to the study at hand, if the participants view the commercials and the television show as one, they may assimilate their opinions between the two, whereas if they view the commercials as being distinct from the show, they may contrast their opinions.

Advertisements in the context of television are often viewed in a negative light (Alwitt & Prabhaker, 1992; Alwitt & Prabhaker, 1994), although there is some research that contends that the negative attitudes are not as extreme as previously thought (Shavitt, Lowrey, & Haefner, 1998). Other research has found that attitudes towards an advertisement are an important determinant in the advertisement’s success (MacKenzie & Lutz, 1989). If the overall view of television advertisements is generally negative, it is an uphill battle for an advertisement to overcome the prejudiced attitudes in the viewers that advertisements are bad. There are a variety of factors that surveys have found to be important in that view, including perceptions that the advertisements are shown too often, that they are deceitful, and the personal and social costs involved (Alwitt & Prabhaker, 1992). All of these studies, however, are focusing on television advertising as a whole and not on specific circumstances. It could be that individual advertisements with varying degrees of relevance are viewed more positively. If that were the case then
participants that see relevant advertisements may then have a more positive association with the television show than those that see irrelevant advertisements.

Another necessary factor to consider when evaluating the viewers’ attitudes towards the program is their preconceptions about the show and the “age-congruent” expectations about advertisements that the participants bring with them to the laboratory, via socialization processes (Cardozo, 1965; Anderson, 1973). Expectancy-Disconfirmation theory, having roots in multiple studies including those by Cardozo (1965) and Anderson (1973), posits that consumers’ attitudes about a product will be shaped by their previous understanding of the qualities of that product prior to experiencing it. Therefore, if the product is of equal or higher quality than originally imagined, a consumer will be pleased, whereas if the product is of lower quality than initially thought, a consumer will be displeased. Similarly, if the nature, or quality(ies), of a target stimulus, such as a TV show, are of adequate or greater congruency than expectations created by the context stimulus, or a show’s ads, the consumer will be satisfied, but if not, then the consumer (or viewer) will be displeased, or dissatisfied:

H1: Viewers exposed to age-incongruent ads will show more negative explicit attitudes toward the TV show in which the commercials are embedded, as compared to viewers exposed to age-incongruent ads.

Prior theory and research has suggested that, under most circumstances, implicit attitude measures are more veridical representations of underlying feelings compared to explicit attitude measures (see, e.g., Dovidio & Fazio, 1992; Fazio & Towles-Schwen, 1999, Wagner & Sundar, 2009). With this in mind, it seems important to complement the initial, explicit attitude hypothesis with an implicit-based one using the same line of logic.
as a means of verifying and extending the results. In this instance, given the subtle nature of the discrepancy – as compared to, for instance, taking the brown out of cola, as was the case with a short-lived product named “Crystal Pepsi” (Sullivan, 2013) – participants may not realize that their attitudes toward the show have changed, and implicit measures have also been shown to be more sensitive to subconscious attitude changes (Fazio, Jackson, Dunton, & Williams, 1995).

Hofmann, Gawronski, Gschwendner, Le, & Schmitt (2005) performed a meta-analysis of correlations to see if a test of implicit attitudes (specifically the Implicit Associations Test (Greenwald, McGhee, & Schwartz, 1998)) was correlated with responses from explicit measures. In their study, the authors compared 81 different studies and found a variety of significant findings. Most importantly, the implicit attitudes had a small, but positive, correlation with the explicit measures. At the same time, differences were found in terms of the topic covered and how that alters the overall correlation. In general, affective responses were more sensitive than cognitive reactions and “socially taboo subjects,” such as those involving racism. Therefore, the foundational theoretical approach used to posit H1, which predicted a difference in explicit attitudes, should hold when examining implicit attitudes, as well:

**H2: Viewers exposed to age-incongruent ads will show more negative implicit attitudes toward the TV show in which the commercials are embedded, as compared to viewers exposed to age-congruent ads.**

The proposed hypotheses, which say that attitudes toward the show will differ as a function of the discrepancy between the target demographics for the show and the ads, rely on Mandler’s (1990) Discrepancy/Evaluation Theory,
which would also predict higher levels of arousal at the commercial breaks, due to the incongruity. These higher arousal levels were seen in McDowell and Mandler (1989) when the participants experienced a discrepant event while playing a video game immediately following the event. Therefore, for those who see an incongruent (or perceived discrepant) ad/show combination, as compared to those who see a congruent ad/show combination, we would expect to see a difference between the groups’ levels of arousal, at the commercial breaks:

**H3:** At the commercial breaks in the programming, viewers exposed to age-incongruent ads will display higher levels of arousal as compared to those who are exposed to age-congruent ads.
METHOD

For this experiment, there were two conditions, or groups of participants: an “age-incongruent condition” and an “age-congruent condition.” Both groups watched the same television show, but the advertisements within the show were different, such that those who were in the incongruent group saw ads for products/services that were designed for elderly people and those in the congruent group saw ads that were for products/services marketed at a college-aged demographic. The television show was an episode of “The Big Bang Theory,” which, according to an Experian Simmons National Consumer Survey (2012), is the second most popular show among the 18-24 year-old demographic. The top-rated show was “Family Guy” but since that skews more male, it was determined that it would be better to “The Big Bang Theory” as it is more evenly liked between male and female viewers. The sample for the study was of college students from an introductory strategic communication class at Ohio University that draws students from a wide variety of majors and backgrounds. Participants took part in the study one at a time.

The age-incongruent condition saw commercials aimed at elderly people – who are otherwise known to contemporary, professional strategic communicators as the “Grey Market” (Balazs, 2004; Gunter, 1998) – including those for reverse mortgages, adult diapers, and retirement communities. The age-congruent advertisement group was shown commercials targeted toward college-aged individuals, including those for products such as make-up, consumer electronics, and clothing.
A much wider array of advertisements, including those that could be used in the proposed experiment, were pretested on a convenience sample of 80 college students drawn from the same course (but during the preceding term) to ensure that there were no statistically-significant differences among the ads in terms of perceived audio/visual quality. The pretest also measured whether the “congruent advertisements” were perceived by participants to be aimed at college students while the “incongruent advertisements” were not.

The levels of the ads’ congruency were measured as a function of their perceived relevance to the college student sample. On a scale from 1 to 7, with higher values equaling greater relevance, the four commercials selected for the main study experiment's congruent group had mean relevancies of 6.40625, 5.73076, 5.46428, and 5.8125 (M = 5.85345, SD = .39739) whereas the relevance for the incongruent ads had mean relevancies of 1.21739, 1.56, 1.34615, and 1.57692 (M = 1.42511, SD = .17381). The differences in relevance were significant in a t-test \[ t(6) = 20.419, p < .001 \].

Participants for the main study came from the E.W. Scripps Participant Pool and were randomly assigned to one of the two experimental conditions. Due to the random assignment procedure of picking “ID numbers” from a baggie, as well as some participants misunderstanding directions (e.g., “no-shows” and participants not completing the questionnaire before leaving the laboratory), 65 participants completed the full experimental procedure, with 35 in the age-congruent group and 30 in the age-incongruent group. Each group also had one outlier, both of whom were removed from
all analyses, so that there were 63 total participants, with 34 and 29 participants in the age-congruent and age-incongruent groups, respectively.

Through random assignment, a sample of participants should hypothetically have a representative distribution across the spectrum of potential prior opinions of television shows targeted toward their demographic, including “The Big Bang Theory” program used in the experiment. For those participants who had high \textit{a priori} expectations about the show, the outcome of seeing the show with unexpected advertisements, in relation to their mental schemata, should lead to a perceived discrepancy that, in turn, would lead to a negative evaluation of the TV show, itself.

Before entering the lab, participants were briefed on what was expected of them and they were allowed to ask questions. Also, participants were allowed to ask questions about the process. Participants were then escorted into the lab and shown the corresponding stimulus as a function of condition assignment (see Appendix C, D, and E for full experimental protocol).

All participants’ skin conductance levels were monitored to gauge their arousal levels while consuming the stimulus. Since Mandler’s original study, skin conductance level (SCL), also described as level of electrodermal activity (EDA), has been shown to be a more reliable and valid measure of arousal than heart rate, despite the intuitive link we might see between a “pounding heart” and one’s state of wakefulness (Sundar & Wagner, 2002). Participants’ SCL was measured with an Apple® iMac™ connected to a Biopac™ MP-35 processing unit, using Biopac’s™ reusable Velcro® strap-on electrodes that were affixed to participants’ index and middle fingers, as per Biopac™ instructions.
Once participants had finished viewing the stimulus and the psychophysiological SCL equipment was disconnected, participants completed implicit association tests (IAT; Greenwald, McGhee, & Schwartz, 1998) (see Appendix A for a copy of the version of the IAT used in the experiment). The test gauged participants’ implicit attitudes toward the show by measuring speed with which they associated various positive and negative adjectives with the show or “dummy nouns,” such as colors or animals (Wagner, 2001; Wagner & Sundar, 2009). Converse (1970), among others (see Fazio & Towles-Schwen, 1999), illustrated that filling out a questionnaire can actually lead one to create a newly-formed attitude on-the-spot, when there may have been no prior attitude held; therefore, the implicit attitude measure was conducted prior to the explicit measure questionnaire.

Following the completion of the implicit attitude measure, participants were asked to fill out a questionnaire gauging their explicit attitudes towards the show (see Appendix B for full questionnaire). The explicit measure was adapted from prior research (Palmgreen, Donohew, Lorch, Rogus, Helm, & Grant, 1991), as previous studies comparing implicit and explicit attitudes have done (see, e.g., Andriasova & Wagner, 2004; Wagner, 2001; Wagner & Sundar, 2009). The explicit measure, as used in this study and in the prior research from which it was adapted, includes eight 5-point semantic differential scales, including ranges from good to bad, acceptable to unacceptable, and wonderful to horrible to gauge participants’ overall attitudes toward the show.

Additionally, four questions were asked to specifically understand how the participants liked the episode they had just viewed, the commercials they saw, the
amount of previous experience the participants had with the show, and how much they
would like to watch the show in the future. These questions appeared after a second set
of instructions on the computer with which the participants were using to respond to the
earlier semantic differential scale items that formed the explicit attitude questionnaire.

The responses from the explicit attitude questionnaire were analyzed between
groups to test H1, which predicted that those in the age-incongruent condition
participants would display more negative attitudes toward the show, as compared to those
in the age-congruent condition, while the implicit measure responses were analyzed
between the groups to test H2, which made the same prediction but with regard to
implicit attitudes. Lastly, mean skin conductance levels, measured at the commercial
breaks, served as the dependent variable in a test of H3, which stated that those who saw
the incongruent show/ad combination stimulus would exhibit higher levels of
electrodermal activity, which is the measure of arousal used in this study.
RESULTS

The first hypothesis stated that the individuals viewing the age-incongruent ads would display more negative attitudes towards the show, as compared to those who viewed the age-congruent ads. To test H1, the participants were asked eight semantic differential questions on a five-point scale. Afterwards, all of the responses were summed (8 items; $\alpha = .936$) to form an “explicit attitude index,” wherein higher scores indicate more positive attitude towards the show. The potential values for the measure, therefore, ranged from 8 to 40, with 8 signifying extreme dislike, as compared to 40, representing an extremely positive view of the show as a whole. The mean explicit attitude index score for all participants was 30.952 with a standard deviation of 6.06.

When comparing the two groups together using a one-tailed $t$-test, the mean index scores for the age-congruent ($M = 28.862$, $SD = 5.053$) and incongruent groups ($M = 30.952$, $SD = 6.545$) were significant [$t(61) = 2.648, p < .01$] (see Table 1 below). A one-tailed $t$-test was used because the hypothesis that is being tested directionally predicted that the age-congruent group would have higher liking of the show as compared to the age-incongruent group. Therefore, H1 was supported.

Table 1: Explicit Index Score by Group

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>Standard Deviation</th>
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<tbody>
<tr>
<td>Age-Congruent</td>
<td>34</td>
<td>32.735*</td>
<td>5.053</td>
</tr>
<tr>
<td>Age-Incongruent</td>
<td>29</td>
<td>28.862*</td>
<td>6.545</td>
</tr>
<tr>
<td>Overall</td>
<td>63</td>
<td>30.952</td>
<td>6.060</td>
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* $p < .05$
Additionally, participants were asked to respond to the following statement on a five-point Likert scale item, with responses from strongly agree to strongly disagree: “Overall, I liked the television program I just watched.” Those in the age-congruent group responded more positively to the show than those in the age-incongruent group. These responses were coded with 1 meaning strongly agree and 5 meaning strongly disagree. The means for the congruent and incongruent groups were 2.059 (SD = .8507) and 2.552 (SD = 1.2126), respectively, which was a significant difference when analyzed with a one-sided t-test \( t(61) = -1.888, p = .032 \). This result lends additional support to H1.

Additional explicit variables included the participants responding to the following questions on a 5-point Likert scale with responses ranging from “Strongly Agree” to “Strongly Disagree”: “Overall, I liked the commercials I just watched”; “I watch The Big Bang Theory often”; and “I would like to see more episodes of The Big Bang Theory in the future.” The responses to these questions were coded so that a lower score represented stronger agreement with the statement. For the question about participants’ liking of the commercials, there was a significant difference \( t(61) = -7.300, p < .001 \), wherein the age-congruent condition had a much higher liking of the commercials \( (M = 2.029, SD = 1.0294) \) than the age-incongruent group \( (M = 3.793, SD = 0.8610) \).

The remaining two items did not meet the level of significance, with the question about previous experience with the show not differing between the age-congruent \( (M = 3.794, SD = 1.3207) \) and the age-incongruent \( (M = 3.862, SD = 1.3816) \) conditions when
using a two-tailed $t$-test [$t(61) = -1.199, p < .843$]. The final question, which was about future viewing intent, also did not meet the level of significance but approached significance, with the age-congruent condition nearly displaying a greater intent to watch in the future ($M = 2.441, SD = 1.1333$) as compared to the age-incongruent condition ($M = 2.793, SD = 1.0816$) when analyzed with a two-tailed $t$-test [$t(61) = -1.254, p = .214$].

The second hypothesis was based on the implicit association test. That test featured words associated with “The Big Bang Theory” along with colors and positive and negative words. The participants were asked to categorize the lists of words multiple times to see how quickly they associated with them the positive or negative words to measure the underlying thoughts of each participant. Higher and lower scores correspond to more positive and negative implicit attitudes about the show.

For the implicit attitude measure—which was adapted from prior stereotyping research by Lowery, Hardin, and Sinclair (2001), and has been adapted in more contemporary studies that look at different attitude objects (see, e.g., Andriasova & Wagner, 2004; Wagner & Sundar, 2009), there were eight words for each of the positive and negative categories as well as eight words for each of the colors and words associated with “The Big Bang Theory.” To familiarize themselves with the categories, the participants were shown all of the positive and negative words on one page as well as all of the colors and words associated with “The Big Bang Theory” on another page. After indicating that they were comfortable with the lists of words, two trial runs of categorizations were administered to again allow the participants to see what would be expected of them. For these trial runs, the participants were shown a list of 16 words; the
first had the participants differentiate between colors and words associated with The Big Bang Theory and the second had the participants categorize between positive or negative.

The “critical stages” (Greenwald, McGhee, & Schwartz, 1998; Lowery, Hardin, & Sinclair, 2001), in which the participants saw all 32 of the words together (evenly divided among all four categories), had the individuals attempt to categorize the list of words in two distinct pairings. The groups in the first critical stage were “colors OR positive” words and “The Big Bang Theory OR negative” words. The next critical stage reversed the association for the valenced words so that the categories were “colors OR negative” words and “The Big Bang Theory OR positive” words. Each of the critical stages had two trials with one practice trial that simply had the valenced words by themselves and on reversed sides of the page, as they were to appear in the second set of critical trials.

To create an “implicit attitude index,” if the participant correctly associated a word with either “The Big Bang Theory” or a positive word when the two were grouped together, that would add 1 to the index. Similarly, when “The Big Bang Theory” was associated with negative words, a correct categorization of either of the two types of words would subtract one from the index. Given that both critical stages had two trials and each could have up to 16 correct responses, the range of potential values for an individual’s index would be from -32 to 32. The implicit attitude index value was added as the dependent variable in a one-tailed t-test to test H2. This method differed from those in previous studies cited earlier by only measuring the number of correct
categorizations of words associated with “The Big Bang Theory” and the positive/negative words paired with them, depending on the critical stage.

A comparison of the implicit attitude indices for the congruent group ($M = 6.059$, $SD = 3.915$) and the incongruent group ($M = 7.448$, $SD = 4.297$) marginally did not support $H2 (t(61) = -1.342, p = .092)$, when entered into a one-tailed $t$-test (see Table 2 below), because the means show that the age-incongruent group displayed a more positive implicit attitude toward the show as compared to the congruent group. As such, these results will be discussed further in the next chapter.

In reference to the earlier mentioned findings in the meta-analysis by Hofmann, Gawronski, Gschwendner, Le, and Schmitt (2005) – as well as the prior findings of Dovidio and Fazio (1992), which also showed that implicit attitude responses predict explicit attitude responses, across a number of studies – a correlation analysis was run to see if there was such a relationship between the explicit and implicit values for these data, as should be expected. However, there was essentially no relationship between the two variables ($r = -.074, p < .563$), even with additional analyses conducted for the congruent ($r = .024, p < .894$) and incongruent ($r = -.059, p < .762$) groups individually.

**Table 2: Implicit Index Score by Group**

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age-Congruent</td>
<td>34</td>
<td>6.059</td>
<td>3.915</td>
</tr>
<tr>
<td>Age-Incongruent</td>
<td>29</td>
<td>7.448</td>
<td>4.297</td>
</tr>
<tr>
<td>Overall</td>
<td>63</td>
<td>6.698</td>
<td>4.122</td>
</tr>
</tbody>
</table>
The third hypothesis related to SCL of the participants while watching the commercials. Each participant had one’s SCL measured throughout the viewing of the show and commercials. There were five parts isolated from the visual presentation, and they were: 1) the first segment of the show; 2) the theme song; 3) the first commercial break; 4) the second segment of the show; and 5) the second commercial break. The segments were 196, 24, 60, 398, and 60 seconds, respectively. As each individual comes in to the laboratory with different levels of skin conductance there are two separate ways to analyze the measurements: absolute values or the change in levels from one section to the next (Sundar & Wagner, 2002). In both cases, the participants’ levels are measured in micromhos.

The third hypothesis specifically deals with SCL during the commercial breaks, as those are where the independent variable of the congruency was manipulated. Across all segments measured, the absolute mean SCLs were higher in the age-congruent group compared to the age-incongruent group. In a number of those cases, the differences were significant (see Table 3).

In particular, the three cases where there was a significant difference between the two groups occurred during the first three show segments, which were the opening portion of the show \( t(61) = 1.817, p < .05 \), the theme song \( t(61) = 1.806, p < .05 \), and the first commercial break \( t(61) = 1.764, p < .05 \). In all three cases, the congruent group had a significantly greater SCL mean, than the incongruent group. However, only one of the three differences regarded H3, *per se*, as the hypothesis was only predicting the SCL for the commercial breaks.
Table 3: Absolute Skin Conductance Levels by Group

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Show 1*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Congruent</td>
<td>34</td>
<td>-.05723282</td>
<td>.090782534</td>
</tr>
<tr>
<td>Incongruent</td>
<td>29</td>
<td>-.08991059</td>
<td>.036295873</td>
</tr>
<tr>
<td>Theme*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Congruent</td>
<td>34</td>
<td>-.002069338</td>
<td>.1397830521</td>
</tr>
<tr>
<td>Incongruent</td>
<td>29</td>
<td>-.054793172</td>
<td>.0776424770</td>
</tr>
<tr>
<td>Commercial 1*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Congruent</td>
<td>34</td>
<td>.01347026</td>
<td>.152752082</td>
</tr>
<tr>
<td>Incongruent</td>
<td>29</td>
<td>-.04361731</td>
<td>.090621404</td>
</tr>
<tr>
<td>Show 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Congruent</td>
<td>34</td>
<td>.07649253</td>
<td>.188451084</td>
</tr>
<tr>
<td>Incongruent</td>
<td>29</td>
<td>.01436362</td>
<td>.139256845</td>
</tr>
<tr>
<td>Commercial 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Congruent</td>
<td>34</td>
<td>.14433735</td>
<td>.226323437</td>
</tr>
<tr>
<td>Incongruent</td>
<td>29</td>
<td>.07152072</td>
<td>.182725795</td>
</tr>
<tr>
<td>Overall</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Congruent</td>
<td>34</td>
<td>.03880032</td>
<td>.158411569</td>
</tr>
<tr>
<td>Incongruent</td>
<td>29</td>
<td>-.01557576</td>
<td>.106254879</td>
</tr>
</tbody>
</table>

* p < .05

It can also be helpful for explanatory purposes to know how much the participants’ SCLs changed from one section to the next through within-participants comparisons to understand the differences that each section had on their overall levels of arousal. Some of the individuals may have come into the experiment more nervous, anxious, or excited, leading to differing initial levels. By analyzing the changes, the initial levels should be controlled for. In all of the cases, the congruent group had greater
movement for each successive segment, including an overall greater difference from the first segment to the last. Although the congruent group mean differences are all greater, none of them meet the level of significance. The mean differences are all found in table 4. Taking both of the different analyses of the skin conductance levels together, the third hypothesis is not supported, considering that one of the two conditions from the absolute SCL was significant in the opposite direction than hypothesized.

<table>
<thead>
<tr>
<th>Table 4: Relative Skin Conductance Levels by Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condition</td>
</tr>
<tr>
<td>--------------------------------</td>
</tr>
<tr>
<td>Show 1 to Theme</td>
</tr>
<tr>
<td>(p = .143)</td>
</tr>
<tr>
<td>Congruent</td>
</tr>
<tr>
<td>Incongruent</td>
</tr>
<tr>
<td>Theme to Commercial 1</td>
</tr>
<tr>
<td>(p = .503)</td>
</tr>
<tr>
<td>Congruent</td>
</tr>
<tr>
<td>Incongruent</td>
</tr>
<tr>
<td>Commercial 1 to Show 2</td>
</tr>
<tr>
<td>(p = .736)</td>
</tr>
<tr>
<td>Congruent</td>
</tr>
<tr>
<td>Incongruent</td>
</tr>
<tr>
<td>Show 2 to Commercial 2</td>
</tr>
<tr>
<td>(p = .467)</td>
</tr>
<tr>
<td>Congruent</td>
</tr>
<tr>
<td>Incongruent</td>
</tr>
<tr>
<td>Show 1 to Commercial 2</td>
</tr>
<tr>
<td>(p = .323)</td>
</tr>
<tr>
<td>Congruent</td>
</tr>
<tr>
<td>Incongruent</td>
</tr>
</tbody>
</table>
DISCUSSION

This study focused on the ways in which television advertisements may reciprocally impact viewers’ attitudes towards a given television show. From the theories and studies discussed in the literature review, we would expect to see a difference between the age-incongruent group and the age-congruent group in terms of explicit and implicit attitudes toward the TV show in which the ads were embedded (in this case, an episode of “The Big Bang Theory”), such that the age-incongruent condition would show more negative results on both types of attitudes than the age-congruent condition. In the case of the explicit attitudes, the hypothesized difference between the groups was found, supporting prior theory and research, as well as its adaptation to the context of this study.

In general, the present study takes prior work well beyond its original context in a number of ways. First, it introduces incongruity as a difference between targeted age groups for two different stimuli, as opposed to changing the same task through which participants had developed expectations, as was done by Mandler (1990). Also, the present study differs from prior work insofar as the stimuli were introduced only for a single lab trial, allowing the results to depend upon expectations that had been developed through prior media use. Lastly, the present study moves the context from a more interactive one, such as playing video games, to a more passive one – simply watching television. The theory has been used to better understand the evaluation process within a variety of fields and areas of study. This study has now expanded the theory into the advertising and television realms.
As technological changes shift how individuals watch television programs, these findings may help better understand the interplay between advertising and the show. The narrowcasting and targeting that is possible over the internet can allow for content providers and creators to ensure demographically relevant advertisements for the individual viewers. Specifically using demographically age-congruent advertisements for the viewer may increase his/her evaluation of the related show. That statement does run counter to previous findings by Turow et al. (2009) that surveyed Americans on whether they would prefer to have advertisements to their likes. The survey yielded that two-thirds of respondents would rather not have advertisements tailored to them. The survey did not question how the advertisements impact the content with which they are paired but it is important to know how viewers may respond to future targeting. This does raise additional questions for viewers outside of the intended demographic if the advertisement is congruent with the viewer but the show is not. That is beyond the scope of this study but illustrates the line of research that this study could lead down. Additionally, targeting online, such as banner advertisements that are displayed alongside content, may also influence how the user sees the content.

However, when examining participants’ implicit attitudes, not only did the advertisements not appear to cause a significant difference in the predicted direction, but the measures marginally supported the opposite of H2, which predicted that those in the age-incongruent condition would have more negative resulting attitudes. The Implicit Association Test yielded more positive implicit attitudes among those who viewed the incongruent ads ($p = .092$). According to Discrepancy/Evaluation Theory, evaluations
should result from heightened levels of arousal produced by a large discrepancy between the target age of the show and the ads within, and that, in turn, should be a function of the advertisements falling outside participants’ schemata as they relate to the self.

As such, the incongruent ads hypothetically should have created comparatively negative explicit and implicit attitudinal response for the viewers in that group. To better understand the results, a third hypothesis had been made aiming to show that the individuals who viewed the incongruent ads should experience greater arousal, which in turn would cause a negative evaluation, leading to more negative attitudes towards the television show. Between the two groups, the participants did not display a significant difference in arousal levels, leading to a marginal support in the direction opposite of the hypothesized relationship. The advertisements were pretested so they could produce a large amount of arousal, therefore increasing the intensity of the evaluation, because large amounts of discrepancies produce negative arousal, whereas small, insignificant discrepancies produce positive arousal, as per Mandler’s (1990) theory. Moreover, with exploratory studies such as this, a program of research is perhaps best started by maximizing the potential of the stimulus to see if an effect can be elicited (Sundar, 1999). Despite best efforts to validate prior theory and research herein, the results were nearly the opposite of what was hypothesized, with respect to implicit attitudes.

Given the findings in support of the first hypothesis, which predicted explicit attitudes for the age-congruent group would be more positive, it is possible to see a range of potentially fruitful outcomes from the findings. Theoretically, the prevailing dogma among advertising professionals has been to unquestioningly target advertisements with
demographically similar shows. The result begs for additional research to further test the various conditions under which that may or may not actually be the case – when the theories will hold. Methodologically, the results were still significant given a small set of explicit questions. With a larger amount of questions and greater depth, it would hypothetically be possible to see an even greater effect. From a practical standpoint, considering that the television show is a product in itself, if a network truly wanted to cultivate a specific type of audience for that show, it could pick and choose which ads should run with it to build higher congruency with that audience. Especially for those that are channel surfing, a network may be able to catch the eye of the desired audience and transfer that to the show. Additionally, as television shows and advertisements move online through services like Hulu.com, more targeted advertisements may become available. If these findings hold under those situations, it may be a win-win for both the advertisers and the show’s producers as the increased amount of available user data may yield more correctly targeted advertisements. More research on this will be necessary to fully understand the implications for the online environment.

The results obtained when testing the second hypothesis – that predicting implicit attitudes – appear to be confusing given the previous research outlined in the literature review. Taken together, the theories should have helped to predict and explain the potential results, as hypothesized. However, in this study, only the explicit measures showed significant results in the hypothesized direction, whereas the implicit measure hypothesis was marginally disconfirmed, meaning that the results demonstrated a pattern opposite of that which was hypothesized. That result will need to be better understood,
both theoretically and methodologically, as it appears from as exhaustive a search of the literature as was possible that Mandler’s (1990) Discrepancy/Evaluation theory may never have been tested with implicit attitudes prior to this study.

One potential explanation for the implicit results comes from the literature on contrast effects (see e.g., Sherif & Hovland, 1980; Petty & Wegener, 1993). When adapting the contrast effect to this experiment, the individuals that saw the congruent ads would have experienced no discrepancy with which to compare to the television program. Those who saw the incongruent ads would have had ads that they did not like to compare to the show, thereby subconsciously making them like the show more than those who did not. The difference would be so subtle, though, so that they would not consciously be able to notice these feelings compared to those that simply watched the congruent advertisements. They did, however, notice that they did not like the advertisements.

That explanation might be supported by the explicit response to the statement, “Overall, I liked the commercials I just watched.” Between the two groups, there was a significant difference in how the participants responded to that statement. On a scale from 1 to 5, with 1 meaning strongly agree and 5 meaning strongly disagree, the congruent group showed significantly more negative responses than those who saw the incongruent ads ($t = -7.3$, df = 61, $p < .001$). The contrast effect, therefore, may be one potential reason for the discrepancy between the support of the explicit hypothesis and disconfirmation of the implicit hypothesis.

Dahlén, Rosengren, Törn, and Öhman’s (2008) work may add additional evidence to the potential for a contrast effect. In their work, they showed thematically incongruent
magazine advertisements (such as a car advertisement in a beauty publication) to participants and analyzed their attitudes towards the brand. Although the researchers did not measure the change in attitudes towards the magazine, the results suggested that the readers paid more close attention to the advertisements that were thematically incongruent and had stronger associations with the brands’ qualities.

Translating those results to the study at hand, if the individuals in the incongruent condition did notice the advertisements more so than the participants in the congruent condition, they may have been subconsciously alerted to the differences and paid closer attention. Building on that, Alden, Mukherjee, and Hoyer (2000) performed experiments to test humor in television advertisements and to show how it was modified by incongruity and surprise. They found that there is a large, statistically significant relationship between surprise (due to the incongruity) and perceived humor. As such, the participants may have actually enjoyed the commercials, regardless of their explicit responses. Also, given that some of the commercials could be potentially seen as humorous in a juvenile sense (in particular the Depends adult diapers and, potentially, the Poligrip denture adhesive), the humor may have been viewed differently depending on the maturity level of the participants.

Although the advertisements were pretested, there was no measure to control for the potential of a “novel” response, and in this case, the novelty proposed is a function of the ads’ context, as opposed to seeing them separately. As such, the pretest of the ads could not have captured such a response. Instead, the questions focused on relevancy and likeability, as well as audio/visual quality and cues. Further studies would focus on
deeper dimensions of likeability, such as humor in a vein similar to Alden, Mukherjee, and Hoyer (2000) or Speck (1991), with the former using the latter’s humor categorizations to analyze the effects of incongruous humor in magazine advertisements to more fully understand how participants may view the content of the advertisements.

Considering the potentially novel nature of the incongruent commercials and that the individuals, if they stated that they enjoyed the commercials, could be seen in a negative light by finding humor in the misfortunes of seniors, they may have felt the need to hide their true reactions. The misfortune element was not explicit but could be implicitly seen due to the commercials for adult diapers and reverse mortgages both having negative connotations. That could give credence to the idea that they explicitly did not like the show as much as the congruent group participants but had higher scores on the IAT. Although the liking of the show may not have been controversial enough to hide their opinions, the implications of liking the commercials might. It is also important to consider the two groups that are integral to the study at hand: college students and seniors. Previous research has shown that college students may not be accepting of older people in situations that they would typically be reserved for younger people, such as in a dormitory or as a student in a classroom (Schwalb & Sedlacek, 1990). Commercials that place seniors in a negative light due to unintended elements of novelty may play into previously held biases towards older individuals to produce unexpected outcomes understood through the Discrepancy/Evaluation theory.

One additional thought for the disconfirmation of the implicit attitude hypothesis could be that the implicit association test has shown to be accurate when the participants
have a reason to hide their true feelings, such as if the experiment is discussing a socially sensitive subject such as race or sexual orientation. In the case of a television show, the participants may instead have felt no pressure to disregard their true feelings about the show. In a few cases, various participants willingly stated their like or dislike of the show while watching the video without being asked, which could signal the comfort with which the participants felt with showing their true feelings towards the show.

The nature of “The Big Bang Theory” could potentially have added confounding variables into the experiment, particularly with respect to the implicit association test. The main premise of the show revolves around the dichotomy between the “nerd” and the “normal,” with four socially awkward male characters and a singular, attractive and “regular” female character. If the participants did not want to appear to be associated with liking the unpopular “nerd” stereotype, they may have been less likely to overtly state their liking for the show. Conversely, the show is also known for being very popular, which may have led some participants to hide their true liking of the show in an attempt to seem more individualistic. Although that logic would appear to alter the explicit response and not the implicit, the participant may have had a previously manufactured internal response to the show that modified the way they viewed the show. Therefore, they may have been predisposed to not like the show from a socialized standpoint.

Additional understanding of the results may come from the skin conductance level results, wherein the congruent group was consistently more aroused by the ads and programming. One explanation for the increased liking may come from excitation-
transfer theory (Zillman, 1971). The theory states that the additional arousal will be attributed to the subsequent stimulus, producing an increased emotional response to it. Such a stimulus could come from a variety of factors, both internal and external. For example, Anderson, Deuser, and DeNeve (1995) found that individuals exposed to higher temperatures inside a room experienced more excitation transfer than those that were in a cooler room, when both playing video games and engaging in aerobic exercise.

Likewise, Sundar and Wagner (2002) showed that the arousal from slow or fast-downloading ads could transfer to a subsequent site, while surfing the web, leading to significantly greater arousal levels as a function of the ad, depending on the combination of the ad type (positive, negative, or neutral) and the speed of ad download.

Similarly, new (sections of) stimuli also often evoke “orienting responses” (see, e.g., Ito & Cacioppo, 2000), wherein processing a differing stimulus, such as advertisements, within a larger, more consistent context, causes us to “re-orient” to the subsequent stimulus, which can cause a range of psychophysiological responses, including event-related potentials. Therefore, it would be possible for each new section of the video presentation to be viewed in the context of the previous sections. With that in mind, the contrast effect could have been greater for those seeing the incongruent advertisements than those who did not need to “re-orient” as much. Additionally, the need to “re-orient” may have taken the individuals out of the moment so that they were not focusing on the television show but instead thinking about the advertisements that they had just seen.
Overall, though, there are some potentially influencing factors to consider that are beyond the scope of this thesis and likely too expansive for any single study, due to the incredibly complex nature of media. For instance, Aylesworth and MacKenzie (1998) examined the effects of program-induced mood on thoughts about a specific advertisement. Although their study was focused on the advertisement and not the television show, they did find that the tone of both the advertisement and the television show could influence how the participants saw the other. Using those and other, similar results to design this study would require the use of numerous different advertisements and shows, each with different positive and negative qualities. As such, the number of necessary conditions would quickly become too large and unwieldy, especially considering the degrees of freedom lost with the addition of each factor and the number of potential participants.

For instance, Kamins, Marks, and Skinner (1991) performed one such study that analyzed mood incongruity between happy and sad television shows and commercials. Again, the dependent variable was related to the opinion of the advertisement as opposed to the television show, but the findings illustrated that the participants had a more favorable opinion of the advertisements that were congruent with the mood of the show. Therefore, sad advertisements were seen more favorable when paired with sad shows and happy advertisements were viewed more positively when paired with happy shows. Both of these studies introduce potentially confounding variables, but are beyond the scope of this exploratory study. They beg for additional research including similarly designed variables in the future.
CONCLUSION

As early as Lehmann’s (1971) work on television program choice, research has shown that individuals do not tend to choose which type of shows to watch based solely on their inherent demographic characteristics. The previous results should give additional sway to those that are focused on the television show as product over the advertisements. As previously stated, the modus operandi for television advertising has focused on using demographically-congruent advertisements with television shows, but these results show that this method may be sacrificing potential viewers. Should the television networks be in dire need for a show to succeed, so much so that they would ignore the traditional pleas of the advertising executives, it may lead to increased liking amongst specifically targeted audiences. The move to television online, with services like Hulu.com, will potentially increase the usefulness of these results. Online technologies allow for greater targeting on a variety of factors, including demographics, that can be used to both advertise to a specific type of viewer and improve the targeted audience’s opinions of the show.

Different television shows will potentially produce separate types of emotional response in varying degrees of intensity. That may interact with the perception of the commercials and alter the results (Aylesworth & MacKenzie, 1998). Similarly, the tone of the commercials will also have the potential of introducing a similar confounding variable, as was shown by Kamins, Marks, and Skinner (1991) when they studied the (in)congruency between groups of happy and sad commercials paired with happy and sad
television programs. Further research will be needed to examine whether similar results can be obtained using other types of discrepancies/incongruities.

This study has a variety of intriguing results for both the academy and industry to consider. The implicit association test, a stalwart within the media psychology community, did not predict results similar to those of the explicit test, as hypothesized. Further work will be needed to see if the implicit attitude results can be replicated or if they are a new development to Mandler’s (1990) theory, which may better understand the effect of unexpected events. Along with the disagreement between the explicit and implicit measures, an important element of this study is that the SCL measure did not achieve significance in the ways hypothesized. That may have been caused by a discrepancy that was not extreme enough to cause a large physiological reaction, but it may also signal an entirely different mechanism within the participants’ thought processes. In the end, the significant results from the explicit attitudes hypothesis show promise for further research and industry applications. The potential for commercials to impact the viewers’ attitudes without them noticing it is intriguing. Typically within the media industry, the audience is viewed as the product that is delivered by the television shows. With these results, there is more reason to consider the programs as products themselves. Additionally, versions of the program without commercials, such as what would be included on a DVD set or Netflix streaming, may be viewed differently than those that include commercials. Further research will be needed to better understand the impact of having commercials versus not including commercials with the programs.
Overall, it is not a simple process to understand the inner emotions and processes within the human mind as they are hidden away from the outside world. In particular, this study has extended Mandler’s theory to examine passive watching, as compared to previous studies that have required (inter)active participation, specifically with video games. Also, the experiment rested on previous schema created through relatively more passive media consumption and schema not based on expectations created in the laboratory. The addition of implicit measures also extends the theory into the realm of subconscious responses to perceived discrepancies, which raises questions about Mandler’s theory, at that level, due to a marginal disconfirmation of the hypothesis.
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Theory & Methodology Division at the 84th annual meeting of the Association for Education in Journalism and Mass Communication, Washington, DC.


APPENDIX A: IMPLICIT ASSOCIATIONS TEST

ID #: ________________

PLEASE DO NOT OPEN UNTIL THE RESEARCHER ASKS YOU TO DO SO.

THANK YOU!!!
<table>
<thead>
<tr>
<th>THE BIG BANG THEORY</th>
<th>COLORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENTERTAINMENT</td>
<td>BLUE</td>
</tr>
<tr>
<td>RELATIBLE</td>
<td>ORANGE</td>
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</table>

STOP. DO NOT CONTINUE!
<table>
<thead>
<tr>
<th><strong>positive</strong></th>
<th><strong>negative</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>good</td>
<td>bad</td>
</tr>
<tr>
<td>pleasant</td>
<td>unpleasant</td>
</tr>
<tr>
<td>valuable</td>
<td>worthless</td>
</tr>
<tr>
<td>favorable</td>
<td>unfavorable</td>
</tr>
<tr>
<td>acceptable</td>
<td>unacceptable</td>
</tr>
<tr>
<td>nice</td>
<td>awful</td>
</tr>
<tr>
<td>wonderful</td>
<td>horrible</td>
</tr>
<tr>
<td>excellent</td>
<td>poor</td>
</tr>
</tbody>
</table>

STOP. DO NOT CONTINUE!
THE BIG BANG THEORY

COLORS

RED
QUALITY
PURPLE
GREY
LAUGHTER
PINK
ENTERTAINMENT
GENIUSES
BLUE
RELATIBLE
INTELLIGENCE
ORANGE
YELLOW
SHELDON
BROWN
TELEVISION

STOP! DO NOT CONTINUE!
positive

favorable
worthless
pleasant
unacceptable
wonderful
bad
unpleasant
valuable
unfavorable
excellent
awful
good
horrible
acceptable
nice
poor

STOP! DO NOT CONTINUE!
TELEVISION
  valuable
ORANGE
  unacceptable
PINK
  favorable
SHELDON
  worthless
BLUE
  wonderful
RELATABLE
  horrible
LAUGHTER
  pleasant
BROWN
  unpleasant
RED
  awful
QUALITY
  excellent
GREY
  acceptable
GENIUSES
  nice
ENTERTAINMENT
  bad
PURPLE
  unfavorable
INTELLIGENCE
  good
YELLOW
  poor

STOP. DO NOT CONTINUE!
unfavorable
BROWN
ecellent
INTELLIGENCE
  bad
GENIUSES
  wonderful
YELLOW
  poor
RELATIBLE
  worthless
SHELDON
  horrible
BLUE
  pleasant
RED
  acceptable
QUALITY
  unpleasant
LAUGHTER
  good
GREY
  nice
PURPLE
  favorable
ENTERTAINMENT
  unacceptable
TELEVISION
  awful
PINK
  valuable
ORANGE

STOP! DO NOT CONTINUE!
QUALITY
GREY
SHELDON
BLUE
RELATIBLE
BROWN
TELEVISION
ORANGE
ENTERTAINMENT
PINK
INTELLIGENCE
PURPLE
GENIUSES
YELLOW
LAUGHTER
RED
SHELDON
  good
  RED
  excellent
INTELLIGENCE
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  poor
TELEVISION
  nice
  PINK
  unpleasant
BROWN
  favorable
GENIUSES
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LAUGHTER
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GREY
  wonderful
ORANGE
  unfavorable
ENTERTAINMENT
  unacceptable
  PURPLE
  pleasant
QUALITY
  worthless

STOP! DO NOT CONTINUE!
awful
TELEVISION
  good
SHELDON
  acceptable
YELLOW
  unfavorable
RELATIBLE
  valuable
GREY
  bad
LAUGHTER
  nice
RED
  unpleasant
PINK
  wonderful
QUALITY
  horrible
BLUE
  excellent
BROWN
  poor
GENIUSES
  pleasant
ORANGE
  favorable
ENTERTAINMENT
  unacceptable
PURPLE
  worthless
INTELLIGENCE

STOP! DO NOT CONTINUE!
APPENDIX B: EXPLICIT ATTITUDES MEASURE

**ID #:**

**Questionnaire**

Below is a list of word pairs. Circle one of the numbers near the word in each pair that best describes how you feel about the following statement:

"I think The Big Bang Theory is..."

<table>
<thead>
<tr>
<th></th>
<th>bad</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>good</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>unpleasant</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>pleasant</td>
</tr>
<tr>
<td>3</td>
<td>worthless</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>valuable</td>
</tr>
<tr>
<td>4</td>
<td>unfavorable</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>favorable</td>
</tr>
<tr>
<td>5</td>
<td>unacceptable</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>acceptable</td>
</tr>
<tr>
<td>6</td>
<td>awful</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>nice</td>
</tr>
<tr>
<td>7</td>
<td>horrible</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>wonderful</td>
</tr>
<tr>
<td>8</td>
<td>poor</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>excellent</td>
</tr>
</tbody>
</table>
**Overall, I liked the television program I just watched**

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>

**Overall, I liked the commercials I just watched**

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>

**I watch The Big Bang Theory often**

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>

**I would like to see more episodes of The Big Bang Theory in the future**

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>
APPENDIX C: EXPERIMENTAL PROTOCOL

1. “Outside of the laboratory” “Hello, are you here for the experiment?”

If they answer in the affirmative, continue to step 2.

2. “Hand them a consent form” “Cool. The first thing I’ll need you to do is please look over this consent form and let me know if you have any questions. If you don’t have any questions and agree to it, then you can sign it.”

If the participant has any questions, answer them. If they sign it, move to step 3.

3. “Collected consent form” “Thank you. Please follow me and have a seat on the couch. Please select one letter out of this envelope.”

4. “For this experiment, you will watch a short video from a television show while having a computer measure your interest level. To do that, we will need to attach this device to the index and middle fingers on your non-dominant hand. To get the best connection with the computer, please rub this pad on the tips of your fingers.”

5. “Okay, cool. Are you ready?” “Start the measure and video at the exact same time”

6. “Add the video is over” “Okay, please remove the wires and have a seat at the table over here.” “Have participant move to computer desk and switch to Strength of Association Measure”

7. “After Strength of Association Measure” “Now you’ll just answer a few questions about the video you just watched. There will be instructions on how to answer the first 8 questions. After that, there will be another set of instructions and 4 more questions. Please let me know if you have any questions. First, I need to quickly set up the program.” “Set up the program with corresponding ID”

8. “After finishing the program, move to Debriefing”
APPENDIX D: IMPLICIT ATTITUDES TEST STRENGTH OF ASSOCIATIONS

MEASURE PROTOCOL

1. “OK, Now we’re going to be doing a measure of word association that involves categorizing lists of words. As you go along, please keep three things in mind:

(1) Stay with me. Please don’t go ahead of the page I tell you to be on; (2) Please do all tasks as quickly and accurately as you can; and (3) Please go from top to bottom on all of the pages without skipping any words.”

2. “Okay, please open to the first page. This has lists of words associated with The Big Bang Theory and Colors. Look over these lists to familiarize yourself with them, and when you’re done, please look up to let me know.”

3. “Turn to the next page. This has lists of positive and negative words. Look over these and familiarize yourself with them, and once again look up when you’re done.”

4. “Don’t turn the page yet, please. The next page will have a list down the center and columns on either side labeled COLORS and THE BIG BANG THEORY. When you turn the page, you will be given 20 seconds to go down and categorize the words on the list. Check the left side of the page if it is a COLOR and the right side of the page if it is a word associated with THE BIG BANG THEORY. Start at the top and go as quickly and accurately as you can. When I tell you to stop, please stay on that page. Okay, you have 20 seconds. Ready? Begin.”

5. <<Time the 20 seconds and when it’s over…>> “Stop and do not turn the page yet. On the next page you will see a list a lot like the last one, but this one will be of positive and negative words. Check the left side if the word is a positive word and the right side if the word is negative. Once again you will have 20 seconds…Ready? Begin.”

6. <<At the end of the 20 seconds>> “Stop. On the PAGE AFTER THIS ONE you will see a list of words that includes COLORS and THE BIG BANG THEORY, as well as positive and negative words. Check the left side of the page when the words are either COLORS or positive words and the right side if the words are associated with THE BIG BANG THEORY or negative words. You will again have 20 seconds, so go as quickly and accurately as you can…Ready? Begin.”
7. **<<After 20 seconds>>** “Stop. On the next page you will do the same thing as you did on this one. Check the left side of the page when the words are either COLORS or positive words and check the right of the words are associated with THE BIG BANG THEORY or negative words. You will still have 20 seconds. Ready? Begin.”

8. **<<After 20 seconds>>** “Stop. The next page will be like the first one you did. It will have the list of words down the middle and you will categorize them as words associated with THE BIG BANG THEORY or COLORS. This time, though, you will check the LEFT side for THE BIG BANG THEORY and the RIGHT side for COLORS. You will have 20 seconds. Ready? Begin.”

9. **<<After 20 seconds>>** “Stop. The next page will go back to both kinds of words together. It will again have a list of words down the middle, but this time you will put a check on the left side of the page if it is either a word associated with THE BIG BANG THEORY or a positive word and a check on the right side of the page if it is a COLOR or a negative word. Once again you will have 20 seconds, so go as quickly and accurately as you can…Ready? Begin.”

10. **<<After 20 seconds>>** “Stop. The next page is the same as the last one. You will again check the left side if it is either a word associated with THE BIG BANG THEORY or a positive word and a check on the right side of the page if it is a COLOR or a negative word. You will again have 20 seconds…Ready? Begin.”

11. **<<After 20 seconds>>** “Stop. Okay that’s the end of the measure…Thank you.”
    **<<Go back to original protocol>>**
APPENDIX E: DEBRIEFING

In this study, we asked your opinion of the television show you just watched. You were apart of one of two groups. The difference between these groups is that they each saw the same television show but the commercials were different. We will then compare the answers from the two groups to see if the commercials had any effect on how you and the rest of the group members perceived the show. Through this, we hope to better understand the effects of advertising within television shows. The general consensus amongst television producers and advertisers is that commercials should be paired with television shows that share the same demographics, although this has never been scientifically tested. This experiment hopes to test that idea and further the understanding of advertising and television. Please do not speak to anyone at Ohio University about this study until Wednesday as it may taint any additional data. Thank you for your time.