Psychological Concepts in Advertising: Exploring the Uses of Psychology Through a Historical Overview and Empirical Study

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Through a Historical Overview and Empirical Study

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A Senior Project in Partial Fulfillment of the Requirements of the Honors Program

March 20, 2014

Acknowledgements

I would like to thank my advisor, Andrea Olson, and my committee members, Elizabeth Otto,

Sara Kerr, and Arturo Sesma, for their time and encouragement during this project. I would also

like to thank Gayle Gaskill, the Honors Program Coordinator, for her guidance. Finally, I would

like to thank my family and friends for their never-ending encouragement during this process.

Abstract

This paper provides a historical overview and experimental exploration of psychology in the field of advertising. It will address four prominent psychologists who shared their psychological knowledge with the advertising field, as well as an empirical study examining current psychological persuasion techniques. These include the use of color, subliminal messages, and misrepresented facts and statistics. Knowledge of these techniques (persuasion knowledge) was tested to determine if an educational intervention could increase participants' persuasion knowledge, and if the knowledge would negatively influence participants' attitudes towards advertising. Sixty-three participants were randomly assigned into the advertising condition or the control condition. Each group viewed a PowerPoint presentation and answered survey questions about advertisements and their advertising attitudes. Results showed that advertising participants scored significantly higher on persuasion knowledge test questions than the participants in the control group. A significant difference in participants' self-reported understandings of the advertisements' persuasion techniques was found in one ad and in the opposite direction than expected. Qualitative data illustrate participants had difficulty applying their persuasion knowledge. There were no significant differences between groups regarding advertising attitudes or product attitudes. Future research should consider modifying the educational intervention to help participants apply their knowledge by recognizing techniques in advertisements.

Psychological Concepts in Advertising: Exploring the Uses of Psychology Through a Historical

Overview and Empirical Study

Consumers are exposed to hundreds of advertising messages each day, but many are unaware of the psychological knowledge and concepts that are used to create many of today's advertisements (Lindstrom, 2008). The application of these psychological concepts to advertising began in the late 19th century and early 20th century (Benjamin, 2004). With the help of psychologists, advertisers were able to increase their knowledge of concepts such as association, memory, perception, and emotion in order to better reach consumers (Scott, 1904).

This paper will start by exploring the historical contributions four prominent psychologists made to the field of advertising since the late 1800s, as well as how their work continues to be applied. The next part of the paper explains three psychological persuasion techniques currently used in advertising: the utilization of color, subliminal messages, and misrepresented facts and statistics. The final part of the paper is an empirical study expanding on the use of these techniques by exploring the extent to which today's consumers have knowledge of psychological persuasion techniques (persuasion knowledge), their attitudes towards advertising and products that use persuasive advertising techniques, and whether an educational intervention can impact their knowledge and attitudes.

Historical Applications of Psychology in Advertising

The field of advertising began in the second half of the 19th century when technological advancements provided businesses with surpluses of goods (Benjamin, 2004). Advertising developed as a way for businesses to differentiate their products from one another and persuade consumers to purchase their product rather than another product. It allowed them to create demand and increase sales.

Meanwhile, the field of experimental psychology was developing and included scientists who wanted to apply their knowledge to problems in the real world rather than in the laboratory (Benjamin, 2004). Pure scientists disapproved of this, as did the scientific community as a whole. It was believed that research in laboratories was superior. As a result, applied scientists desired to gain credibility and prove the importance of their work. Applying their knowledge to advertising was one way in which they began.

The relationship between advertising and psychology developed because advertisers were also searching for credibility. They wanted to add more science to their work to prove its effectiveness and to understand the motives influencing consumer behavior (Benjamin, 2007). Psychologists were hired to assist in gathering the information that would help advertisers gain a deeper understanding of their customers (Friedman, 2004). As the relationship developed, advertisers used psychological concepts to increase the sophistication of their ads and their ability to influence consumers.

Four of the influential psychologists in advertising psychology were Harlow Gale, Walter Dill Scott, Harry Hollingworth, and John B. Watson. The work and contributions of each psychologist allowed advertising psychology to grow into the well-developed field it has become today.

In 1895, Harlow Gale was the first psychologist to research advertising issues (Eighmey & Sar, 2007). His background in experimental psychology and interest in advertising practices led him to survey 200 businesses across Minnesota about their advertising practices. In the cover letter he sent with the surveys, he acknowledged the novelty and importance of his work, as well as his desire to uncover the processes that occur in consumers' minds once they see advertisements and once they actually purchase the advertised product (Benjamin, 2004). His

focus was on how elements of magazine advertisements, such as type size, design, and color, influenced consumer attention and decision-making (Eighmey & Sar, 2007). Because his work and interests were so novel, the advertising community was not immediately interested in his ideas and he received a low response rate from his surveys. Even so, Gale was still able to provide suggestions for how to improve advertising techniques by combining his results with additional information he gathered from interviews with advertisers (Gale, 1900). His major findings focused on the best ways to format print advertisements, as well as differences in colors that attracted the attention of men and women (Eighmey & Sar, 2007).

Gale's work did not receive much attention at the time, but it opened the door for future psychologists with similar interests to pursue an understanding of the roles of psychology in advertising and consumer decision-making. One of these psychologists, and an admirer of Gale's work, was Walter Dill Scott.

Scott's career in advertising psychology was long and productive, spanning from the early 1900s to 1920 (Benjamin, 2007). Similar to Gale, Scott's background was rooted in experimental psychology rather than advertising. This training gave him the ability to apply concepts such as suggestion, perception, mental imagery, memory, and emotion to advertising in a methodical and scientific manner. Even though he believed consumers could be easily persuaded, he believed his ideas and techniques were not manipulative, but motivational in influencing consumers' purchases (Friedman, 2004; Schultz & Schultz, 2008).

Scott's work regarding the importance of consumer emotions and utilizing suggestion to influence consumer behavior were well-received by the advertising community, as were his beliefs in making advertisements appealing and intense, and helping consumers associate products with their own lives (Friedman, 2004; Muchinsky, 2011). He turned his ideas into two

books and expanded on how to utilize suggestion to influence consumers. *The Theory of Advertising* was first published in 1903, and *The Psychology of Advertising* was first published in 1908 (Scott, 1903; Scott, 1908). His knowledge interested the business world, and his writings were able to influence the growth of advertising by clearly presenting information advertisers could easily apply to their work. His writing has been considered one of his greatest career accomplishments because it presented psychological theories as solutions advertising professionals could implement in their work (Sandage, 1974). It is unclear as to the exact reasons why Scott's ideas were better received than Gale's ideas, but Scott's writings were likely a significant contributing factor.

While Scott and Gale's approaches to analyzing consumers focused on the factors that attracted attention from consumers, psychologist Harry Hollingworth took a different approach in the early 1900s (Benjamin, 2004). Hollingworth focused on the effectiveness of advertisements because he believed that an attention-grabbing advertisement would not necessarily result in a sale. He claimed four tasks could illustrate whether or not an advertisement was effective. These tasks were: gaining the consumer's attention, holding the consumer's attention, making a lasting impression on the consumer, and motivating the consumer to act. The final test of an advertisement's effectiveness was when the consumer actually purchased the product. Throughout this work, he developed an interest in understanding the stimuli present in each task, such as wording, color, and images (Benjamin, 2004).

Before entering advertising, the final psychologist, John B. Watson, was well-known in the field of psychology for his work regarding behaviorism. His ideas were an extension of Ivan Pavlov's classical conditioning (Benjamin, 2007). Pavlov conducted experiments where animals learned to respond to a conditioned stimulus. Through this work, Pavlov discovered how to elicit

responses from stimuli that were once neutral. Watson expanded on these ideas through the development of behaviorism with an emphasis on predicting and controlling behavior, especially outside of laboratory settings (Fancher, 1990; Schultz & Schultz, 2008).

This prior work provided him with knowledge needed to predict and control behaviors. His interest in discovering scientific ways to control the behavior of consumers led him to seek out opportunities to share his knowledge with the business world (Benjamin, 2004). The J. Walter Thompson advertising agency in New York City became interested in Watson because they believed his knowledge could help the company increase sales (Buckley, 1982). After being hired by the agency in 1920, Watson worked to demonstrate how behavioral principles were relevant and applicable to the business world. From his hire in 1920 to his retirement in 1945, he sought to apply the ideas of behaviorism in hopes of predicting and controlling consumer behavior (Benjamin, 2007).

Through his work, Watson tried to elicit emotions such as fear, rage, and love from consumers in order to increase purchases (Benjamin, 2004). He realized that influencing consumers' senses and eliciting emotions using indirect testimonials were advantageous in increasing consumer purchases. His ability to condition consumers' behavioral responses to previously neutral stimuli led to understanding how to influence consumer decisions and how to create predictable consumers (Benjamin, 2004). His work brought science, predictability, and strategies for influencing consumers to the field of advertising by applying his understanding of human behavior to real world consumers (Buckley, 1982).

Watson's work led into the 1950s, a decade known as the golden age for psychologists in advertising due to the increasing number of psychologists working in advertising (Clay, 2002). During this time, advertising agencies sought out psychologists and experts in behavior to share

their input and assist in creating advertising campaigns that would persuade consumers. With this increase in psychologists applying their knowledge to advertisements came an increase in paranoia among consumers. One way in which this came about was through Vance Packard's 1957 book *The Hidden Persuaders* in which he described psychological persuasion tactics advertisers were using to "trick" consumers (Meyers, 1984). This fueled further paranoia when researcher James Vicary claimed to have projected subliminal messages such as "Drink Coca-Cola" and "Eat Popcorn" onto a theater's movie screen and reported an increase in concession sales at the theater. This was later disproved, but the idea became known as subliminal advertising (Lindstrom, 2008). Regardless of the accuracy of these claims, Americans were in an uproar and demonstrated this to the advertising world by resisting sales pitches and ultimately decreasing their spending.

Advertisers responded by trying to change the impressions consumers had about brands by implementing emotional rewards (Meyers, 1984). These included trying to influence consumers' perception by utilizing sex appeal and peer approval. As psychologists continued to work with advertisers, tools called psychographics were developed and utilized. Psychographics provided detailed information about different populations, including their attitudes and beliefs, in order to better target each segment. Today, psychologists continue to work with advertising agencies to understand the behaviors of consumers and what persuades them (Kardes, Kahle, Shavitt, & Haugtvedt, 2014). Their work continues to apply decades of information about psychological persuasion techniques to modern day advertisements and campaigns.

Current Psychological Concepts in Advertising

There are many psychological techniques implemented in advertising to persuade consumers (O'Shaughnessy & O'Shaughnessy, 2004). These include the use of color to elicit

specific associations or emotional responses, subliminal messages, and misrepresented facts and statistics. The use of color in advertising is beneficial in eliciting emotional responses from potential consumers (Lee & Barnes, 1989). Colors can influence the emotional behavior of consumers by attracting attention to advertisements or highlighting certain elements of advertisements. Each color has characteristics and emotional responses that consumers are believed to associate with it (Schindler, 1986). For example, red is thought to be associated with feelings such as happiness and excitement, while green is calming and interpreted as being healthy and natural.

Subliminal messages are another persuasion technique utilized in advertising, although their effectiveness is controversial. Subliminal messages are blended into advertisements as hidden words or images and are presented below a person's consciousness or awareness (Messaris, 1997). Advertisers rarely confirm the use of subliminal messages in advertising because of ethical opposition (Moore, 1982). Research has supported the idea that behavior, cognition, and attitudes can be influenced by subliminal stimuli such as images or words (Vargas, 2008). However, there is little to no support for the ability of subliminal stimuli to be persuasive. These stimuli are still used in advertising, but are considered a "very weak force" when it comes to being persuasive (Vargas, 2008, p. 478). The Federal Trade Commission (FTC) proclaimed that advertisements that make use of subliminal messages in attempts to influence the unconscious decision making of consumers are deceptive and unfair (Lindstrom, 2008).

Misrepresented facts, statistics, and research are used in claims to persuade consumers. They can influence consumer perceptions about products, especially depending on how they are presented. If product claims are unable to be supported, the FTC declares them to be a form of false advertising (Millstein, 1964). This has occurred in advertisements for products such as

health supplements and cosmetics (Draelos, 2008; Federal Trade Commission, 2013). Also,

words and phrases can have multiple meanings. This can lead consumers to different

interpretations and understandings of the information (Millstein, 1964). While this is an

important part of communication, multiple meanings become problematic when consumers can

interpret the information in harmful ways.

Current Study

Persuasion knowledge is the extent to which consumers recognize the intent of

advertisements and the persuasion techniques present in advertisements (Friestad & Wright,

1994). This knowledge may affect how consumers process the information from advertisements,

such as how much attention they give to the persuasion method (Alwitt & Mitchell, 1985).

Consumers have high persuasion knowledge when they are capable of acknowledging when

advertisements are attempting to persuade them to take action, such as purchasing a product

(Friestad & Wright, 1994). Consumers have low persuasion knowledge when they do not have

this same capability to acknowledge persuasion in advertisements. The Persuasion Knowledge

Model more specifically defines persuasion knowledge as a combination of the psychological

events relevant to persuasion; the related causes, effects, and importance; the ability of people to

manage how they respond psychologically; and the persuasion tactic's effectiveness and relative

appropriateness.

Consumers can decide how to handle persuasion attempts based on their level of

persuasion knowledge (Friestad & Wright, 1994). As a result of having high persuasion

knowledge, consumers can develop ideas regarding the goals of the marketers, and choose

whether they want to respond to or ignore each persuasion attempt. Persuasion knowledge can

increase over time, and people can become more motivated to learn how to handle and respond to persuasion attempts (Friestad & Wright, 1994).

Consumers' attitudes towards advertising can also impact the effectiveness of persuasion attempts. Mehta (2000) found that persuasion attempts in advertisements were more likely to work when the advertising attitude was positive. This positive attitude also led to higher recall of advertisements. In another study, skeptical attitudes towards advertising were also related to persuasion knowledge. Adolescents' skepticism regarding advertisements was positively related to their knowledge of persuasive advertising tactics (Boush, Friestad, & Rose, 2004).

Wei, Fischer, and Main (2008) found that activating consumers' persuasion knowledge and making them aware of persuasive advertising alone did not cause them to have a negative attitude toward the advertisement. Instead, their attitude was influenced by other factors such as their familiarity with the brand, their overall advertising attitude, and their belief whether or not the persuasive technique was appropriate.

Psychological persuasion techniques such as these can go unnoticed by the general public if they do not have knowledge of these techniques. Some consumers are more easily persuaded into purchasing a product than others, so it is important to research these concepts in college students in order to encourage them to use their critical thinking skills to make informed decisions and be less susceptible to persuasion attempts.

The present study will explore how an educational intervention influences participants' persuasion knowledge and attitudes about products and advertising. The intervention includes information on three psychological persuasion techniques used in advertising in order to measure participants' persuasion knowledge: color, subliminal messages, and misrepresented facts and statistics.

In order to compare the effect of the educational intervention, participants in the experimental condition (advertising) were educated about psychological persuasion techniques, while participants in the control condition were educated about a neutral but related topic, in this case, economic terms. Three hypotheses were developed based on previous research.

H1: Participants educated on psychological persuasion techniques used in advertising (advertising condition) will have more knowledge of persuasion techniques than participants educated about economic terms (control condition) as a result of receiving the educational intervention on psychological persuasion techniques used in advertising.

H2: Participants in the control condition will have more knowledge of economic terms than participants in the advertising condition.

H3: Because they are aware of the manipulation persuasion techniques use, participants educated on psychological persuasion techniques used in advertising (assumed high persuasion knowledge) will have less favorable attitudes towards advertising as a whole and products that are advertised using psychological persuasion techniques than participants not educated on these techniques (assumed low persuasion knowledge).

Method

Participants

Sixty-four female undergraduate students participated in the study. One participant's survey was removed from the study due to suspicion of invalid responses. Of the 63 participants that were included, 33 were in the advertising condition and 30 were in the control condition. Participants were recruited from four General Psychology courses at a medium-sized private liberal arts university in the Midwest at the beginning of the spring 2014 semester. The majority

of participants were between 18 and 19 years old (*N*= 48). Ten participants were between 20 and

21 years old, two participants were between 22 and 23 years old, and three participants were 24

years old or older (see Table 1).

Table 1

Participant Ages

Age Category (Years)	N	%
18-19	48	76.2
20-21	10	15.9
22-23	2	3.2
24+	3	4.8

Regarding college major, nursing was the most popular major (39.7%, *N*=25). Thirteen

percent of respondents listed exercise science or pre-physical therapy as their major (*N*=8), while

8% reported education (*N*=5) and 5% reported psychology (N=3). Other responses listed by two

or fewer participants included public health, social work, theology, and biology.

Materials

Two narrated PowerPoint presentations were used as educational materials to inform

participants. The PowerPoint presentation used in the advertising condition contained

information about three psychological persuasion techniques used in advertising. These

techniques included the use of color, subliminal messages, and misrepresented facts and

statistics. The narrated PowerPoint presentation used in the control condition contained

information about three economic terms. These terms included complementary goods, substitute

goods, and normal goods. Each PowerPoint presentation consisted of nine slides of information.

This included one slide of words for the technique or term, followed by two pictures illustrating the technique or term. This pattern was used for all three techniques or terms. Both PowerPoint presentations had white backgrounds with black words and did not contain any animations. The amount of information on each slide was kept consistent in both PowerPoint presentations. The narration of each PowerPoint presentation lasted between three and three and a half minutes. A female student with no other involvement in the study narrated both PowerPoint presentations.

A laptop and projector were used to display the PowerPoint presentations onto a screen in each classroom. After viewing the PowerPoint presentation, three advertisements, each illustrating one of the three psychological persuasion techniques, were presented. The advertisements used in the advertising condition were the same advertisements used in the control condition.

A 48-question paper survey was also used. The survey first asked 10 questions about each of the three advertisements for a total of 30 questions. The first two questions asked about their familiarity with each product, and participants could select *yes, no* or *unsure*. The third question allowed for an open-ended response where participants could write and describe how they felt after viewing each advertisement. The fourth and fifth questions measured participants' understanding of the persuasive technique in each advertisement. This included a Likert-scale with six response options, ranging from *strongly disagree* to *strongly agree*, and an open-ended question asking participants to name or describe the persuasive technique. Qualitative data from the fifth question regarding participants' descriptions of the persuasion techniques in the advertisements were coded as *correct*, *partially correct,* or *incorrect* based on how well participants understood each technique. Inter-rater reliability was calculated with a second coder, and ranged from 92.1% to 93.7% across advertisements.

The sixth, seventh, and eighth questions for each advertisement addressed participants' opinions towards the persuasion technique in each advertisement, as well as if they would purchase the product. These questions were on the same Likert-scale with six response options ranging from *strongly disagree* to *strongly agree*. The ninth question asked for participants' attitude towards each product based on the advertisement. Seven response options were on a Likert-scale ranging from *very negative* to *very positive*, including a *neutral* response option.

The second section of the survey contained eight questions assessing attitudes towards advertising images, and advertising overall. All responses were on a Likert-scale with six options ranging from *strongly disagree* to *strongly agree*. From these items, a scale was created from five questions to measure participants' advertising attitude. These questions were 31, 34, 36, 37, and 38 (reversed). The internal consistency of the scale was acceptable ($\alpha = .61$).

The final section measured persuasion knowledge with seven questions. First participants were asked how informed and knowledgeable they believed themselves to be about persuasive techniques used in advertising. There were four response options: *not informed at all, somewhat informed, informed,* and *very informed.* The next six questions asked three questions about the terms from the advertising PowerPoint presentation and three questions about the terms from the economics PowerPoint presentation. Response options were multiple-choice with four options for each question. The final three questions were demographic questions inquiring about each participant's age range, major, and whether or not she had previously learned about persuasive psychological techniques used in advertising. Appendix A contains the complete survey.

Procedure

During recruitment, participants were provided with an informed consent form. The true purpose of the study was concealed on this form in order to obtain more accurate results and

prevent participants from altering their responses by trying to appear more knowledgeable about

persuasive psychological techniques or by trying to analyze the advertisements beyond their

meanings. The purpose was instead described to participants as examining the purchasing

behaviors of college students.

Participants were recruited from four General Psychology classes. The study took place

with instructor permission during the normally scheduled lecture time of each class. After

informed consent was obtained in each classroom, interested participants remained in their seats.

Each classroom viewed either the PowerPoint presentation on psychological persuasion

techniques (advertising condition) or the PowerPoint presentation on economic terms (control

condition). After viewing the PowerPoint presentation, the survey was passed out to students,

and all participants viewed three pictures of print advertisements on the screen. These

advertisements illustrated each of the three psychological persuasion techniques presented to the

participants in the advertising group- color, subliminal messages, and misrepresented facts and

statistics. The advertisements were presented one at a time on the screen. After each

advertisement, the participants answered 10 survey questions about the advertisement. After

viewing all three advertisements, participants completed the rest of the survey questions. When

each participant completed the survey, the surveys were collected. Participants were given a

debriefing slip explaining the true purpose of the study, which was to examine knowledge of

persuasion techniques and their influence on attitudes. Participants were encouraged to contact

the researcher with any further questions.

Results

This section provides information regarding participants' previous exposure to psychological techniques in advertising, and descriptive statistics for the survey questions regarding advertising attitude.

When participants were asked if they had previously learned about psychological techniques used in advertising, 30% of participants in the advertising condition and 30% of participants in the control condition each responded with *yes*. Fifty-two percent of participants in the advertising condition and 53% of participants in the control condition responded with *no*. Eighteen percent of participants in the advertising condition and 17% of participants in the control condition responded with *unsure* (see Table 2).

Table 2

Self-Report of Previous Exposure to Psychological Techniques Used in Advertising

	Overall		*Advertising Condition*		*Control Condition*	
	N	*%*	*N*	*%*	*N*	*%*
Yes	19	30.16	10	30.30	9	30.00
No	33	52.38	17	51.52	16	53.33
Unsure	11	17.46	6	18.18	5	16.67

Table 3 lists the descriptive statistics for participant attitudes towards advertising and advertising images.

Table 3

Descriptive Statistics for Attitudes Towards Advertising and Advertising Images

	Advertising			Control		
	N	M	SD	N	M	SD
I like looking at advertising images.	33	4.52	1.06	30	3.90	1.09
Advertising images influence how I perceive products.	33	4.56	0.95	30	4.43	1.07
The advertisements I see influence the products I choose to purchase.	33	4.30	1.19	30	4.10	1.16
Advertisements are necessary to sell products.	33	5.00	0.90	30	4.90	1.13
Persuasive techniques in advertising are necessary to sell products.	33	5.03	0.98	30	4.83	0.91
Advertisements are a reliable source of information about products.	33	2.85	1.39	30	3.33	1.18
I trust the claims made in advertisements.	33	2.82	0.88	30	2.70	0.84
I think advertisements are annoying and unnecessary.*	33	3.85	1.22	30	3.73	1.05

Note. Questions were coded on a scale from 1 to 6. 1= strongly disagree, 2= disagree, 3= slightly disagree, 4= slightly agree, 5= agree, 6= strongly agree. *The score for this question has been reversed.

Hypothesis 1

The first hypothesis was that participants educated on psychological persuasion techniques used in advertising (advertising condition) would have more knowledge of persuasion

techniques than participants educated about economic terms (control condition) as a result of

receiving the educational intervention on psychological persuasion techniques used in

advertising. This hypothesis was partially supported. To address this, participants' knowledge of

persuasion techniques was measured in three ways. Participants were evaluated on their

knowledge using multiple-choice test questions with correct and incorrect response options

regarding the advertising PowerPoint presentation, a self-reported measure of how informed they

feel about persuasion techniques and how well they understood the persuasion techniques in the

advertisements, and a qualitative measure of whether or not they could accurately apply their

knowledge of the techniques based on an open-ended question asking for a description of the

technique in each advertisement.

Knowledge on Multiple-Choice Test Items. An independent samples t-test was used to

compare the scores of participants in the two conditions when given multiple-choice test

questions assessing their knowledge of persuasive advertising techniques. The mean score of

participants in the advertising condition was 2.70 questions correct (*SD*= 0.53) and the mean

score of participants in the control condition was 2.00 questions correct (*SD*=0.79). These scores

are illustrated in Figure 1 along with the scores on the economics test questions that will be

addressed later in the results section. The demonstrated knowledge of psychological persuasion

techniques for participants in the advertising condition was significantly higher than the

knowledge of psychological persuasion techniques for participants in the control condition, *t*(61)

= 4.16, *p* = .000; 95% CI [0.36, 1.03], *d* = 1.09. The effect size for this analysis (*d* = 1.09)

indicated a large effect size using Cohen's (1988) convention.

Self-Reported Measures of Knowledge. There were no significant differences for self-

reports of how informed participants were or for their understanding of the techniques. When

participants were asked to report how informed they thought they were about psychological

persuasion techniques used in advertising, there was no significant difference between the

advertising group and control group, $t(61) = 0.53$, $p = 0.60$; 95% CI [-0.25, 0.43], $d = 0.13$. The

effect size for this analysis ($d = 0.13$) indicated no effect, using Cohen's (1988) convention.

A MANOVA was used to determine if there were significant differences in participants'

self-reported understanding of the psychological persuasion techniques in each advertisement.

There was a significant effect of the condition (advertising or control) on the combined

dependent variable understanding of the psychological persuasion technique, $F(3,59) = 3.04$, $p =$

0.036; Wilks' Lambda = 0.87; partial $\eta^2 = 0.13$. The two groups differed in their reported

understanding of the psychological persuasion technique that was used in the second

advertisement, which was subliminal messaging, $F(1,61) = 5.91$, $p = 0.018$, partial $\eta^2 = 0.088$.

The difference was in the opposite direction of what was expected because the control group

reported higher understanding than the advertising group.

Application of Knowledge. Qualitative data were analyzed to determine if participants'

self-reported understanding of the techniques was accurate by determining if they were able to

apply their knowledge to name or describe the technique used in each advertisement.

Overall, participants in the advertising condition had more correct descriptions of the

techniques across advertisements than participants in the control condition. For the first

advertisement, five participants from the advertising condition were correct in naming the

technique compared to zero participants from the control condition. For the second

advertisement, two participants from the advertising condition were correct in naming the

technique compared to zero participants from the control condition. For the third advertisement,

nine participants from the advertising condition were correct in naming the technique compared

to three participants from the control condition. More detailed data and their relative proportions

are listed in Table 4.

Table 4

Graded Responses of Participants When Asked to Name or Describe Each Persuasion Technique

	Color		*Subliminal*		*Statistics*	
	N	*%*	*N*	*%*	*N*	*%*
Advertising						
Correct	5	15.15	2	6.06	9	27.27
Partially Correct	7	21.21	6	18.18	0	0
Incorrect	21	63.64	25	75.76	24	72.73
Control						
Correct	0	0	0	0	3	10.00
Partially Correct	1	3.33	0	0	1	3.33
Incorrect	29	96.67	30	100.00	26	86.67

A 2 x 3 chi-square analysis was run to determine the significance of these differences. The relationship between correct/partially correct responses and incorrect responses for the color advertisement was significant in the direction that was expected: χ^2 (2, $N = 63$) = 10.66, $p =$ 0.005. The relationship between correct/partially correct responses and incorrect responses for the subliminal advertisement was significant in the direction that was expected: χ^2 (2, $N = 63$) = 8.33, $p = 0.02$. The relationship between correct/partially correct responses and incorrect responses for the statistics advertisement was not significant: χ^2 (2, $N = 63$) = 3.95, $p = 0.14$.

Hypothesis 2

The second hypothesis stated that participants in the control condition would have more knowledge of economic terms than participants in the advertising condition. This hypothesis was supported. An independent samples t-test was also used to compare the scores of participants in the two conditions when tested on economics knowledge based on the PowerPoint presentation given to the control group. The economic knowledge of participants in the control condition was significantly higher than the economic knowledge of participants in the advertising condition, $t(61) = -5.83$, $p = .000$; 95% CI [-1.43. -0.70], $d = 1.47$. The effect size for this analysis ($d = 1.47$) indicated a large effect using Cohen's (1988) convention. The mean score of participants in the advertising condition was 1.30 questions correct ($SD= 0.68$) and the mean score of participants in the control condition was 2.37 questions correct ($SD=0.77$). These scores are illustrated in Figure 1 with the scores on the advertising test questions.
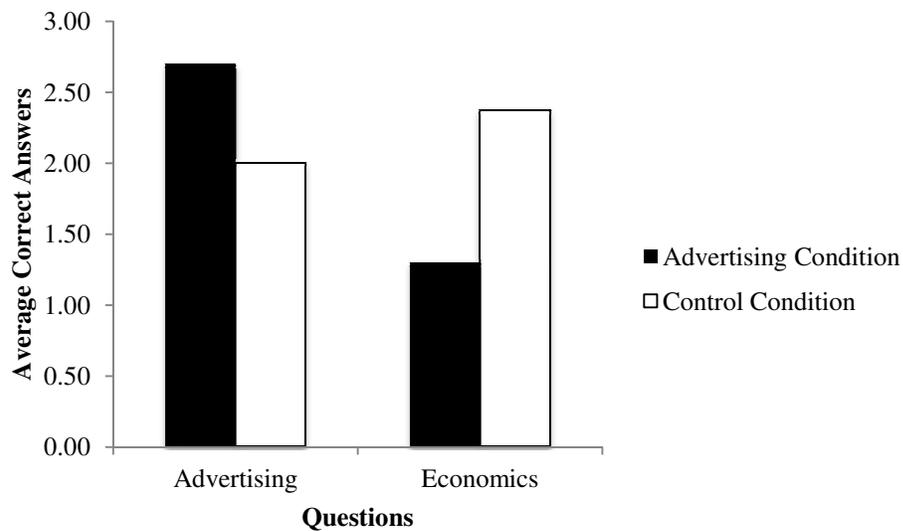

Figure 1. The knowledge of each condition on the advertising test questions (Q40, Q41, and Q42) and economics test questions (Q43, Q44, and Q45).

Hypothesis 3

The third hypothesis stated that because they are aware of the manipulation persuasion techniques use, participants educated on psychological persuasion techniques used in advertising (assumed high persuasion knowledge) will have less favorable attitudes towards advertising as a whole and products that are advertised using psychological persuasion techniques than participants not educated on these techniques (assumed low persuasion knowledge). This hypothesis was not supported.

To analyze differences between the advertising group and control group regarding attitude towards advertising as a whole, the means of each group's score on the advertising scale were compared. When an independent samples t-test was run, results showed no significant difference in advertising attitude between the groups, $t(61) = 0.53$, $p = 0.60$; 95% CI [-0.26, 0.44], $d = 0.13$. The effect size for this analysis ($d = 0.13$) indicated no effect, using Cohen's (1988) convention.

To compare the product attitudes of each condition, a MANOVA was used. There was no significant effect of the condition (advertising or control) on the combined dependent variable product attitude, $F(3,59) = 0.20$, $p = 0.895$; Wilks' Lambda = 0.99; partial $\eta^2 = 0.01$.

Discussion

The first hypothesis stated that participants educated on psychological persuasion techniques used in advertising (advertising condition) would have more knowledge of persuasion techniques than participants educated about economic terms (control condition) as a result of receiving the educational intervention on psychological persuasion techniques used in advertising. This hypothesis was partially supported. When participants were evaluated on their knowledge by multiple-choice test questions, participants in the advertising condition scored

higher on the knowledge questions regarding persuasive advertising techniques than participants in the control condition. However, the groups did not differ significantly in their self-reported understanding of the persuasion techniques used in two of the three advertisements they viewed. For the color and misrepresented statistics advertisements, both groups reported they slightly agreed or agreed that they understood the technique. Qualitative data collected when participants were asked to name or describe the psychological persuasion technique used in each advertisement supported the hypothesis. Responses from participants in the advertising condition were correct or partially correct more often than responses from participants in the control condition. These differences were significant for both the color and subliminal advertisements. It is also interesting to note that the results of the qualitative data showed that few students were able to apply their knowledge to correctly identify the persuasion techniques even though they self-reported high scores on the questions asking for a rating of their understanding of each advertisement's technique.

These results illustrate that participants in the advertising condition were able to recognize and define the psychological persuasion techniques on multiple-choice questions to a high degree, but had difficulty when asked to apply it to sample advertisements. Learning to recognize the persuasion concepts and techniques did not necessarily lead to the ability to apply the material. Also, participants believed themselves to be knowledgeable about psychological persuasion techniques, but their answers to the open-ended questions illustrated few occurrences of knowledge being correctly applied to advertisements.

This study partially supports previous research on persuasion knowledge. Friestad and Wright (1994) suggested that consumers with high persuasion knowledge can acknowledge persuasive attempts and make informed decisions about how to respond to the attempts. While

participants were able to identify persuasion attempts in the advertisements, those in the advertising condition were unable to correctly apply their persuasion knowledge. This suggests that their level of persuasion knowledge is not high enough to benefit them when responding to persuasion attempts in a non-controlled environment such as a grocery store. Friestad and Wright (1994) report that this knowledge can change if people become motivated to handle these persuasion attempts.

The second hypothesis stated that participants in the control condition would have more knowledge of economic terms than participants in the advertising condition. This hypothesis was supported, and shows that participants in the control group were also able to recognize and define terms from the PowerPoint presentation they viewed when completing multiple-choice questions. This illustrates the effectiveness of the control in the study since participants were educated about the economic terms.

The third hypothesis stated that because they were aware of the manipulation used in persuasion techniques, participants educated on psychological persuasion techniques used in advertising (assumed high persuasion knowledge) would have less favorable attitudes towards advertising as a whole and products that are advertised using psychological persuasion techniques than participants not educated on these techniques (assumed low persuasion knowledge). This hypothesis was not supported since there was no difference between conditions for either advertising attitude or product attitude. Participants in both conditions had neutral or positive-leaning attitudes towards advertising. Regarding product attitude, it is possible that previous exposure to the specific products and advertisements for the specific products influenced participants' reported attitudes rather than the independent advertisements they were viewing during the study.

The current study supports the previous research of Wei, Fischer, and Main (2008) regarding attitudes. Even though the persuasion knowledge of participants in the advertising condition was activated, it did not result in a negative attitude towards advertising or towards the products. Participants reported neutral and positive attitudes towards advertising and towards the products.

The results of the current study do not support the findings of Boush, Friestad, and Rose (2004), which stated a positive relationship between skepticism towards advertisements and persuasion knowledge. Participants in the advertising condition were not skeptical towards the advertisements, but instead reported neutral or positive attitudes towards the products.

One limitation of the study was using a survey to collect data from participants since surveys rely on participants' self-report. The composition of the sample was also a limitation due to its small size and composition of only college-age women. A larger and more diverse sample would increase the generalizability of the results. The sample was also limited in that it was difficult to assess if participants had prior persuasion knowledge from exposure to persuasion in advertisements or exposure in a previous course. This was measured through a single question on the survey, making it difficult to assess whether the knowledge participants demonstrated was due to the educational intervention or to previous persuasion knowledge.

Another limitation could have been the use of a PowerPoint as the teaching method. Some participants may have retained the information better if they read the information on their own rather than hearing someone recite the information. Also, college students are frequently exposed to this presentation method in their courses, but it may not be an effective educational method for others who are not in college. Modifying the intervention by selecting a different

teaching method may be more beneficial in helping participants not only learn the material, but also be able to apply the material.

Although the researcher did not believe the advertisements participants viewed were well-known, the products in them were well-known amongst participants. This likely influenced the participants to respond towards the product based on their previous experience with the product or advertisements for the product rather than solely based on the advertisement presented in the study. Future researchers should take this into consideration when choosing advertisements by either designing advertisements for made-up products or finding older advertisements with products participants are less likely to be familiar with.

Future research should also include an extensive pre-test to assess prior persuasion knowledge in order to better determine the influence of the educational intervention. Future research could include more psychological persuasion techniques when measuring persuasion knowledge in order to gain a more complete understanding of participants' persuasion knowledge. Other techniques could include appeals to emotion and celebrity testimonials.

This study has shown that educating consumers about persuasion techniques can increase their persuasion knowledge. Further research is needed to discover how to best educate consumers in order to help them apply their knowledge to real-world purchasing situations. Further research is also needed to understand how persuasion knowledge influences consumers' attitudes towards advertising.

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Appendix A

Survey

Please respond to the following questions based on **Advertisement #1:**

1. I have previously seen advertisements for this brand.
        Yes   No   Unsure

2. I have previously purchased or considered purchasing products from this brand
        Yes   No   Unsure

3. After viewing this ad, I feel:

4. I understand the persuasive technique this ad is using.
Strongly disagree / Disagree / Slightly disagree / Slightly agree / Agree / Strongly agree

5. Name or describe the persuasive technique this ad is using:

6. The persuasion technique used in this advertisement is appropriate to sell the product.
Strongly disagree / Disagree / Slightly disagree / Slightly agree / Agree / Strongly agree

7. The persuasion technique used in this advertisement is necessary to sell the product.
Strongly disagree / Disagree / Slightly disagree / Slightly agree / Agree / Strongly agree

8. Based on this ad, I would purchase this product.
Strongly disagree / Disagree / Slightly disagree / Slightly agree / Agree / Strongly agree

9. Based on this ad, my attitude towards this product is
Very negative / Negative / Somewhat negative / Neutral / Somewhat positive / Positive /
Very positive

10. These are the reasons why I have this attitude towards the product:

Please respond to the following questions based on **Advertisement #2:**

11. I have previously seen advertisements for this brand.
     Yes   No   Unsure

12. I have previously purchased or considered purchasing products from this brand
     Yes   No   Unsure

13. After viewing this ad, I feel:

14. I understand the persuasive technique this ad is using.
Strongly disagree / Disagree / Slightly disagree / Slightly agree / Agree / Strongly agree

15. Name or describe the persuasive technique this ad is using:

16. The persuasion technique used in this advertisement is appropriate to sell the product.
Strongly disagree / Disagree / Slightly disagree / Slightly agree / Agree / Strongly agree

17. *The persuasion technique used in this advertisement is necessary to sell the product.*
Strongly disagree / Disagree / Slightly disagree / Slightly agree / Agree / Strongly agree

18. Based on this ad, I would purchase this product.
Strongly disagree / Disagree / Slightly disagree / Slightly agree / Agree / Strongly agree

19. Based on this ad, my attitude towards this product is
Very negative / Negative / Somewhat negative / Neutral / Somewhat positive / Positive / Very positive

20. These are the reasons why I have this attitude towards the product:

Please respond to the following questions based on **Advertisement #3:**

21. I have previously seen advertisements for this brand.
     Yes   No   Unsure

22. I have previously purchased or considered purchasing products from this brand
     Yes   No   Unsure

23. After viewing this ad, I feel:

24. I understand the persuasive technique this ad is using.
Strongly disagree / Disagree / Slightly disagree / Slightly agree / Agree / Strongly agree

25. Name or describe the persuasive technique this ad is using:

26. The persuasion technique used in this advertisement is appropriate to sell the product.
Strongly disagree / Disagree / Slightly disagree / Slightly agree / Agree / Strongly agree

27. The persuasion technique used in this advertisement is necessary to sell the product.
Strongly disagree / Disagree / Slightly disagree / Slightly agree / Agree / Strongly agree

28. Based on this ad, I would purchase this product.
Strongly disagree / Disagree / Slightly disagree / Slightly agree / Agree / Strongly agree

29. Based on this ad, my attitude towards this product is
Very negative / Negative / Somewhat negative / Neutral / Somewhat positive / Positive / Very positive

30. These are the reasons why I have this attitude towards the product:

Please circle one response for each question:

31. I like looking at advertising images.
Strongly disagree / Disagree / Slightly disagree / Slightly agree / Agree / Strongly agree

32. Advertising images influence how I perceive products.
Strongly disagree / Disagree / Slightly disagree / Slightly agree / Agree / Strongly agree

33. The advertisements I see influence the products I choose to purchase.
Strongly disagree / Disagree / Slightly disagree / Slightly agree / Agree / Strongly agree

34. Advertisements are necessary to sell products.
Strongly disagree / Disagree / Slightly disagree / Slightly agree / Agree / Strongly agree

35. Persuasive techniques in advertising are necessary to sell products.
Strongly disagree / Disagree / Slightly disagree / Slightly agree / Agree / Strongly agree

36. Advertisements are a reliable source of information about products.
Strongly disagree / Disagree / Slightly disagree / Slightly agree / Agree / Strongly agree

37. I trust the claims made in advertisements.
Strongly disagree / Disagree / Slightly disagree / Slightly agree / Agree / Strongly agree

38. I think advertisements are annoying and unnecessary.
Strongly disagree / Disagree / Slightly disagree / Slightly agree / Agree / Strongly agree

Please circle one response for each question:

39. How informed and knowledgeable are you about persuasive techniques used in advertising?
Not informed at all / Somewhat informed / Informed / Very informed

40. In advertising, which color is associated with relaxation, security, dependability, and trust?
A) Red   B) Green   C) Blue   D) Purple

41. What is the term for pictures or words that are purposely blended into an advertisement outside of one's consciousness?
A) Mixed messages   B) Unconscious processes   C) Hidden images D)Subliminal messages

42. Misrepresenting statistical findings in advertisements is one type of
A) Loaded advertising B) Deceptive descriptions C) False advertising   D) Inaccurate portrayal

43. What term is used to describe two products that are used together?
A) Principle goods B) Partner goods C) Supplement goods D) Complementary goods

44. What term is used to describe products in which increased demand for one product results in decreased demand for the other product?
A) Substitute goods B) Complementary goods C) Opposing goods D) Strategic good

45. The demand for these goods increases when income increases.
A) Inferior goods B) Normal goods C) Supply goods D) Superior goods

46. What is your age?

18-19 / 20-21 / 22-23 / 24-25

47. What is your major? _____

48. Have you previously learned about persuasive psychological techniques used in advertising?
Yes   No   Unsure

Appendix B

Honors Project Experience

This project has been an incredible learning experience and a great opportunity to demonstrate the knowledge, skills, and abilities I have gained and strengthened during my four years at St. Kate's. It was unique in that it allowed me to combine my interests in the fields of psychology and business, while also incorporating the field of communication studies, with which I did not have much previous experience.

The project began during the spring of my junior year when I took the psychology course *History and Systems*. In this course, I was required to complete a semester-long research project on a psychology topic I was interested in. I had developed an interest in the role of psychology in business, and chose to take the opportunity to explore the roles of four prominent psychologists who had shared their knowledge of psychology with the advertising field.

I knew I wanted to use this information as part of my senior project, but I wasn't quite sure how to expand the project. Soon it became obvious to me that I should design and conduct my own study. Completing multiple advanced psychology lab courses, working as a General Psychology Lab Instructor, and completing a research project with a faculty member gave me the knowledge, skills, and abilities I needed in order to take on such a significant project in a limited amount of time.

I was interested in many different topics, so it took time to narrow down my ideas into a study that was manageable in relation to my timeframe. I considered exploring topics such as how advertisers sell to children and the ethics of psychologists applying their knowledge to advertising before settling on the idea of exploring advertising techniques that consumers may not recognize. Eventually I narrowed my focus further to persuasion techniques based on

psychological concepts because I was very interested in the ways advertisers manipulated consumers' unconscious decision-making.

The design of the study was very time-consuming and had to be done quickly in order to allow time for review by the Institutional Review Board (IRB). One of the most challenging parts of this process was creating the survey. I tried to complete the survey quickly and that meant I did not give enough thought to how my survey questions addressed the research questions and hypotheses. The survey still provided me with the data I needed, but it also provided me with additional data that wasn't worded quite right in order to be directly applicable to my hypotheses.

After the IRB application was approved, the next challenge became finding time to recruit participants. Ideally, I wanted to conduct the study during class meeting times so I could gather a large amount of data in only a few sessions. I also wanted to conduct the study in the fall semester in The Reflective Woman (TRW) courses for new day students because they are composed of all first-year students who probably do not have previous exposure to these techniques in other courses.

Unfortunately the timing for these courses did not work since recruitment would have occurred at the end of the fall semester. My back-up plan was to conduct the study in General Psychology classrooms at the beginning of the spring semester. The three professors I worked with were kind enough to give me 30 minutes of their class time in order to help me gather data for my project. Collecting data at the beginning of the spring semester meant I had to use my time very wisely in order to complete the project on time.

Looking back, I would not change the challenges I faced while completing the project. Although the timeline was limiting, the data collection did not follow the initial plan, and the

survey could have been improved, I was still able to accomplish a piece of work that I am very proud of. The challenges were simply a part of the unique learning experience and helped me grow and develop as a researcher.

The possibilities for further study are endless. If I were to expand on this project, one task I would focus on would be redesigning the survey. I would make sure the questions more directly addressed the research questions and hypotheses rather than simply being interesting information. I would also reconsider the wording of the questions to eliminate the likelihood of participants interpreting the questions differently than what I intended.

In further study, I would also like to explore ways to modify the educational intervention participants experienced. It was beneficial in helping participants recognize and define persuasion techniques, but not so beneficial in helping them apply their knowledge to sample advertisements. This was a very interesting finding, and made me think about how consumers can be further educated in order to make smart purchasing decisions in the future.

Overall, I am proud to have this project to demonstrate my hard work and my growth as a researcher. It is an accomplishment I will be able to talk about for years to come with employers and graduate schools in order to set myself apart from other candidates. This experience has also given me the motivation and encouragement to continue to pursue research opportunities. I really enjoy being able to apply my knowledge to solve real-world problems, and this is just one way in which I am able to do so. It was a very long process to get to this point, but taking one step at a time allowed me to successfully manage the project and accomplish more than I imagined when I first began the process.