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## The Effects of Subliminal Messages in Print Advertisements

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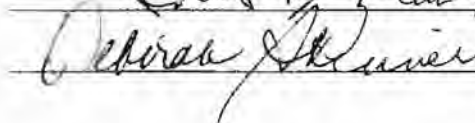
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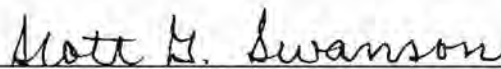
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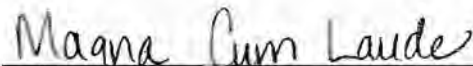
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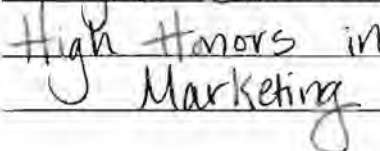
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Level of Honors conferred: University



Departmental



The Effects of Subliminal Messages in Print Advertisements

LLB  
711  
B82gl  
W554  
2002

A Thesis

Presented to the Marketing Department

College of Business Administration

and

The Honors Program

of

Butler University

In Partial Fulfillment

of the Requirements for Graduation Honors

Jamie Lynne Wilfong

March 29, 2002

## **The Effects of Subliminal Messages in Print Advertisements**

Almost every company selling a good or service uses some form of advertising. Advertising is “impersonal, one-way mass communication about a product or organization that is paid for by a marketer” (Lamb, Hair, McDaniel, 2000). Companies advertise to inform consumers about the companies’ products or services and also persuade consumers to purchase the companies’ products. There are many different media forms companies use to get their messages across to the consumers. More traditional methods of advertising include television commercials, radio commercials, newspaper and magazine ads, direct mailings, and billboards. However, marketers are coming up with new ways to get their message across. They are now using electronic means such as the internet, computer modems, and fax machines. Most of these methods are used so that a large target market can be reached at one time. The purpose of advertising is to persuade, remind, and make people aware of the products and services companies can offer.

### **Subliminal Advertising**

One very controversial topic within advertising is subliminal advertising. There are many studies about the subject of subliminal messages and their effects (Trappey, 1996). This type of advertising uses subliminal stimuli, messages presented so fast or so softly or so masked by other messages that one is not aware of “seeing” or “hearing” them (Hawkins, Best, Coney, 1995). When marketers put subliminal messages in advertising, they create subliminal advertising. Subliminal advertising, therefore, involves the use of words, pictures, and shapes that are purposely inserted into

advertising materials so that the viewers of the material perceive the imagery at a subconscious level, rather than at a conscious level (Rogers and Seiler, 1994).

Pratkanis and Greenwald (1988) identified four different types of subliminal stimuli that a marketer could use. They are subthreshold, masked, unattended, and figurally transformed stimuli. Subthreshold stimuli are presented at energy levels too weak to be detected by the audience. An example could be a quiet voice repeating words on a tape that was playing music or flashing words onto a screen so quickly that the audience is not aware of them. Masked stimuli are hidden from the audience by the presentation of some other overriding stimuli. This happens when a message is immediately followed by a bright flash of light or loud noise. Unattended stimuli are presented in such a way that the embedded figure is unlikely to be distinguished from its figural context. An example would be hiding a figure in the curves and lines of a picture of ice cubes or clouds. Figurally transformed stimuli are words or pictures blurred or distorted to the point that they are unrecognizable. This type of message occurs when commands are recorded backwards or inserted into popular music. Interestingly, in the fourth category as in the first, the stimulus remains unidentifiable even when focal attention is directed toward it.

As mentioned earlier, subliminal advertising is a controversial subject. In fact, 75-80% of the US population believes that advertising agencies and the companies they represent purposely use subliminal advertising (Rogers and Seiler, 1994). One of the questions many people ask is if subliminal advertising is ethical. There are many opinions on this subject, but one essential and crucial question is, "Does subliminal advertising even work?" If the subliminal embed in an ad does not have any effect on the

consumer, discussions about the ethics of subliminal ads become mostly theoretical. Further discussion on the ethics of subliminal advertising will appear at the end of this paper after the results of the study have been presented.

### **Effects of Subliminal Advertising**

There are many studies about the subject of subliminal messages and their effects (Trappey, 1996). Numerous studies indicate that subliminal messages can marginally influence a viewer's affect (Aylesworth, Goodstein, and Kalra, 1999; Edell and Burke, 1989; Edell and Burke, 1987; Batra and Ray, 1986). This may be significant because research indicates the feelings one has in response to an ad are important in determining the effectiveness of an ad (Edell and Burke, 1987). There are fewer studies that address evidence that subliminal messages can influence judgements (Greenwald, Draine, and Abrams, 1996; Merikle and Joordens, 1997; Marcel, 1983). However, there are very few studies that give evidence that subliminal messages can affect behavior (Bargh, Chen, Burrows, 1996). The evidence that subliminal messages can affect behavior has been obtained only under strict laboratory conditions though (Epley, Savitsky, and Kachelski, 1999).

Advertisers obviously care about the feelings consumers have about their product, but their concerns move beyond this. They also want to know how persuasive the ad is and how likely the consumers are to buy the product in the ad. While this study will be indicative of the effects of subliminal messages on feelings, judgements, attitudes toward the ad, and purchase intentions, we will not be able to determine if these variables will translate into a greater likelihood of purchasing the product, which is what marketers often are ultimately focused on.

## **Impact of Subliminal Advertising on Consumers**

Conflicting results have been found in studies testing the effectiveness of subliminal messages. Some studies have found an effect while others have not. (Trappey, 1996) The whole controversy of the effectiveness of subliminal messages started when James Vicary announced to the public that he had increased sales of Coke and popcorn by seducing people through the use of subliminal messages in his theater. This study is now deemed a hoax because no one has ever been able to replicate the study (Moore, 1992). In another early example, Fleur and Petranoff (1959) tried to persuade television viewers to either buy certain food products or watch a news show directly after a 2-hour feature movie. They were able to test the effects of the subliminal messages singly and in combination with more usual persuasive techniques such as regular TV advertisements for the food items and the news show. The results indicated that subliminal advertising for food products, either singly or with other methods of advertising, failed to produce any noticeable effects on the sales of the products. Subliminal advertising was not effective in persuading people to watch the news show after the featured movie either. In fact, there was a slight decline in the audience size.

However, a study by Aylesworth, Goodstein, and Kalra (1999) found results which suggest that subliminal embeds may have a small, but indirect effect on attitudes toward a product. This is relevant to marketers because a person's feelings about an ad or product will influence his or her attitudes about that ad or product. This study exposed subjects to sexually suggestive subliminal messages embedded in print advertisements and examined their effect on three types of feelings that might be evoked by the ad: upbeat feelings, negative feelings, and warm feelings. The results showed that there was

no significant main effect of the subliminal message on upbeat feelings but that there was a subliminal message by gender interaction that was significant. The level of upbeat feelings in men in the message embed condition was significantly higher than the level evoked in women. There was also a significant main effect of the subliminal embeds on negative feelings. The gender by embed interaction was not significant. For warm feelings, neither embeds or gender had any effect.

### **Hypotheses**

This study, in part, will replicate the previous study by Aylesworth, Goodstein, and Kalra (1999). In that study, the authors found significant results in the levels of negative feelings evoked by sexually suggestive subliminal messages and gender specific results for upbeat feelings. The 1999 study used only sexually suggestive stimuli, where the study at hand will also use a job subliminal embed. Most of the studies done in this area have used sex as the embed topic and it has only been slightly effective regarding affect and not effective regarding behavior. However, in today's world, sex is more out in the open in all forms of media, so subtle sexual images might logically be ineffective. TV shows sexual scenes between actors and magazines are putting scantily clad models on the covers. Therefore, it might be more effective to use a more relevant embed topic (e.g., job) in the ad because it might be more salient to many people in society, especially at a business school.

Advertising research in the 1970's and early 1980's concentrated on how the ads affected cognitive reactions of consumers (Brown and Stayman, 1992). Though past research has been done with a cognitive influence, marketers have started to realize that the moods and feelings evoked by an ad also had an impact on ad effectiveness. In fact,

Edell (1990) states that theories of advertising are incomplete if they ignore emotional factors. Batra and Ray (1986) provide empirical support that feelings are elicited by ads and impact advertising effectiveness. Feelings evoked in response to an ad are obviously helpful in determining the ad's success, especially when the feelings are upbeat.

Therefore, it is important to test whether consumers exposed to subliminal stimuli will report higher levels of upbeat feelings. The job subliminal embed might also produce higher levels of upbeat feelings than the sexually suggestive subliminal message if the subject has accepted a job following graduation. This is because of the excitement of having the job set up and moving on to the next step in life.

H1a: Subjects exposed to sexually suggestive subliminal messages embedded in a print advertisement will report higher levels of upbeat feelings than will subjects exposed to the control.

H1b: Subjects exposed to a job subliminal message embedded in a print advertisement will report higher levels of upbeat feelings than will subjects exposed to the control.

H1c: Among subjects exposed to the job embed ad, those who have accepted a job following graduation will report higher levels of upbeat feelings than will those who have not accepted a job after graduation.

Similarly, negative feelings also have been aroused due to the exposure of sexually suggestive subliminal messages (Aylesworth, Goodstein, Kalra, 1999). One reason behind this finding might be that some individuals have been exposed to negative situations involving sexual behaviors or may not have positive associations with the term “sex” in general. This might also be true of the job subliminal embed because of the stress it may cause to business school subjects. It is plausible that negative and positive feelings co-occur and have independent effects on summary responses to advertising (Edell and Burke, 1987). So, it is also important to test whether consumers exposed to subliminal stimuli will report higher levels of negative feelings. The job subliminal embed might also produce higher levels of negative feelings than the sexually subjective subliminal message if the subject does not have a job lined up after graduation. This is because of the stresses and pressures of finding a first job.

H2a: Subjects exposed to sexually suggestive subliminal messages embedded in a print advertisement will report higher levels of negative feelings than will subjects exposed to the control.

H2b: Subjects exposed to a job subliminal message embedded in a print advertisement will report higher levels of negative feelings than will subjects exposed to the control.

H2c: Among subjects exposed to the job embed ad, those who have not accepted a job following graduation will report higher levels of negative feelings than will those who have accepted a job after graduation.

Measures of ad effectiveness consist of affective reactions and judgements of ad characteristics (Edell and Burke, 1987). The judgement of an ad's characteristics also seems to be important in evaluating the success of the ad, but it requires cognitive effort. Simple judgement of an ad's characteristics requires cognitive resources beyond subconscious levels and research often fails to support that subliminal embeds influence higher levels of cognitive processing (Pratkanis and Greenwald, 1988). However, the use of a non-sexual embed might be salient enough to have some effect. Some early research in psychology found that subjects exposed to positive subliminal pictures (romantic coupling) judge targets in a positive manner (Krosnick, Betz, and Lynn, 1992). Describing these targets in a positive manner is different than having positive feelings about the targets. Judgements made about an ad's characteristics and feelings are reasonable responses to an ad and may reasonably be affected by the embeds (Edell and Burke, 1987). Though no one has found a link before, all have tried to measure it. So, to replicate Aylesworth, Goodstein, Kalra's (1999) study, this study will also test the judgements of an ad's characteristics.

H3a: Subjects exposed to sexually suggestive subliminal messages embedded in a print advertisement will report different judgements than will subjects exposed to the control.

Also, given the potentially greater salience of a job to business school students, it is reasonable to measure the effects of this embed on judgements about the ad.

H3b: Subjects exposed to a job subliminal message embedded in a print advertisement will report different judgements than will subjects exposed to the control.

Finally, one thing we don't know is whether changes in feelings or judgements translate into a greater likelihood of purchasing the product, which is one end result in which marketers are ultimately focused. One way to think about this is by stepping outside the cognitive and affective decision making frameworks to see if people exposed to the embedded messages are subject to behavioral effects. The activation of someone's schema, "an associative network of interrelated meanings that represents a person's declarative knowledge about some concept," can have an effect on their decisions and behaviors (Peter and Olson, 2002). Most previous research (Aylesworth, Goodstein, and Kalra, 1999; Edell and Burke, 1987) shows that attitude toward the brand and attitude toward the ad affects purchase intentions. This study does not measure attitude toward the brand, but it does test purchase intentions directly. Testing attitude toward the brand would have entailed the development of a neutral "brand name," and demonstrated empirically that the name itself had no significant impact on affects and cognitions. Such an effort was judged to be beyond the scope of the present study and not worth the time and effort to do it well. Given the results of previous research, it is highly unlikely that

the present study will uncover an embed-intention link; however, in order to be logically complete, it must be asked if the consumer has any intention of purchasing the product after looking at the ad.

H4a: Subjects exposed to sexually suggestive subliminal messages embedded in a print advertisement will report higher intentions to purchase the product in the ad than will subjects exposed to the control.

H4b: Subjects exposed to a job subliminal message embedded in a print advertisement will report higher intentions to purchase the product in the ad than will subjects exposed to the control.

## **Methodology**

### **Subjects**

One hundred and twenty-two undergraduate students at a small, private Midwestern university participated in this study. Sixty-four males and fifty-eight females identified themselves in the study. There were three freshmen, twenty-seven sophomores, thirty-five juniors, and fifty-seven seniors. The average age of all the subjects was 20.8 years old. Fifty-three of the subjects identified themselves as marketing majors, twenty-seven finance majors, twenty-two accounting majors, three economics majors, seven international management majors, four subjects were undecided on a major, five were non-business majors, and one subject did not specify a major.

Ninety-three subjects reported not accepting a job after graduation and twenty-nine reported accepting a job for after graduation.

### **Procedure**

All subjects were tested during regular class sessions. Participation was completely voluntary. Each student received his or her own packet of materials to review and was asked not to share any information with other subjects until all were finished with the study. The researcher was present to monitor the process and to answer any questions.

The subjects were given a statement of consent to read and sign. Subjects were then given a brief description of the study and were given a packet of materials to review. The packet included two mock ads (one control ad and one treatment ad, randomly presented), a questionnaire to complete for each ad, and a background information sheet.

Subjects were randomly assigned to non-embed and embed conditions based upon the packet they received during distribution. Each of the subjects was asked to fill out the two pre-questions and then look at the first ad for the same amount of time as they would if they were interested in the product category featured in the ad and ran across it in a magazine. Then, the subjects were to complete a questionnaire about the ad and do the process over again with the second ad. Finally the subjects completed demographic information. Subjects were assured anonymity for their responses.

### **Development of Stimulus Materials**

The subliminal print advertisements were specially created for this study. However, the main idea and logic were taken from the Aylesworth, Goodstein, and Kalra (1999) study. Pictures of bowls of pretzels and cheese curls were taken. Pretzels and

cheese curls were used because these snack foods are relevant to the student population. Then, the pictures were manipulated to include embeds of the words “sex” and “job.” The bowls of food were then placed in a mock print advertisement format. The mock advertisements appear in Appendix A. The packet contained each of the following: an instruction sheet with two pre-questions, a mock pretzel ad, a mock cheese curl ad, an identical questionnaire for each ad, and a demographic data questionnaire. See Appendix B for complete packet. However, the kind of ad, whether with an embed or not, and the order of the ads were different. Refer to Table 1 for details.

**Table 1**

<b>Code</b>	<b>First Ad</b>	<b>Second Ad</b>
<b>1</b>	Pretzel Control	Cheese Curl, “Sex” Embed
<b>2</b>	Pretzel Control	Cheese Curl, “Job” Embed
<b>3</b>	Cheese Curl Control	Pretzel, “Sex” Embed
<b>4</b>	Cheese Curl Control	Pretzel, “Job” Embed
<b>5</b>	Cheese Curl, “Sex” Embed	Pretzel Control
<b>6</b>	Cheese Curl, “Job” Embed	Pretzel Control
<b>7</b>	Pretzel, “Sex” Embed	Cheese Curl Control
<b>8</b>	Pretzel, “Job” Embed	Cheese Curl Control

### **Dependent Measures**

The questionnaires included in the packet of materials were designed around four dependent variables: feelings, judgements, attitudes toward the ads, and purchase intentions. The subjects were asked to answer the questionnaire after looking at the ad for the same amount of time they would if they were interested in the ad and ran across it in a magazine. The subjects were acting as consumers while answering the questions.

Feelings was the first dependent variable. The subjects were specifically asked "After viewing the ad, please indicate on a scale of 1 to 5 the extent to which you experienced the feelings below." Twenty-four items used by Edell and Burke (1987), Shaver et al. (1987), and Aylesworth, Goodstein, and Kalra (1999) were used to measure these feelings. The feelings were classified as upbeat, warm, or negative. See Appendix C for complete list. Subjects indicated how strongly they felt each feeling using a 5-point scale ranging from "did not experience feeling at all" to "experienced feeling very strongly."

A group of items labeled as ad judgements was the second dependent measure. Ad judgements were measured through an inventory consisting of 18 items as reported by Edell and Burke (1987). See Appendix D for inventory list. These items were identified as being evaluation, activity, or gentleness judgements. The subjects were asked to report how well each item *described* the ad on a scale of 1 (the item did not describe the ad at all) to 5 (the item described the ad extremely well).

Attitude was measured using three 7-point scales and is the third dependent variable. The subjects were asked to indicate their attitude towards the ad by using the scales anchored by "likable" and "dislikable," "favorable" and "unfavorable," and "good" and "bad." The final dependent variable was purchase intentions. This variable was measured by asking "If this product were available, how likely would you be to actually purchase this product? Please indicate your purchase intentions using the following 10-point scale." The scale ranged from "Not at all likely" to "Very Likely." See Appendix E for exact question wording.

## Results

The results below are presented in the same order as the hypotheses presented on pages six through ten. In general, these results do not support the hypotheses developed. However, one exception to this is the results regarding Hypothesis 2c. See Appendix F for a full description of statistical results. A brief hypothesis specific results are in Table 2 below.

**Table 2**

Hypothesis	P-Value	Supported/Not Supported
1a-cheese curls	.2150	Not Supported
1a-pretzels	.1280	Not Supported
1b-cheese curls	.3790	Not Supported
1b-pretzels	.2750	Not Supported
1c-cheese curls	.1810	Not Supported
1c-pretzels	.4670	Not Supported
2a-cheese curls	.3010	Not Supported
2a-pretzels	.4910	Not Supported
2b-cheese curls	.1980	Not Supported
2b-pretzels	.1260	Not Supported
2c-cheese curls	.1670	Not Supported
2c-pretzels	.2390	Not Supported
2c-combined	.0710	Supported
3a-cheese curls	.2099	Not Supported
3a-pretzels	.2257	Not Supported
3b-cheese curls	.3669	Not Supported
3b-pretzels	.1941	Not Supported
4a-cheese curls	.1690	Not Supported
4a-pretzels	.3410	Not Supported
4b-cheese curls	.3820	Not Supported
4b-pretzels	.2270	Not Supported

The first hypothesis was split into three parts; the first part was that subjects exposed to sexually subliminal messages would report higher levels of upbeat feelings. Data were analyzed using difference of means tests for two independent groups. The first group was the sexual embed group with the cheese curl ad and the second was the control group with the cheese curl ad. There was no support found for the first hypothesis, as the means were not significantly different ( $t(89) = -.79, p=.2150$ ). The mean for the embed

group (mean = 18.67) was actually lower than the control group (mean = 19.84), which was in the opposite direction as hypothesized. This test was also done with the pretzels ad, using the same two groups. There was no significant difference for these groups as well ( $t(89) = -1.14, p = .1280$ ). The mean for the embedded pretzel ad group (mean = 17.87) was lower than the mean for the control pretzel ad group (mean = 19.54) as in the first group. The second part was that subjects exposed to a job embed subliminal message would report higher levels of upbeat feelings. The first group was the job embed group with the cheese curl ad and the second was the control group with the cheese curl ad. There was no support found for the second hypothesis, as the means were not significantly different ( $t(90) = .31, p = .3790$ ). The mean for the embed group (mean = 20.29) was higher than the control group (mean = 19.84), which was in the direction hypothesized. This test was also done with the pretzels ad, using the same two groups. There was no significant difference for these groups as well ( $t(90) = .60, p = .2750$ ). The mean for the embedded pretzel ad group (mean = 20.54) was lower than the mean for the control pretzel ad group (mean = 19.54) as in the first group. The last part of the first hypothesis was that among subjects exposed to the job embed ad, those who have accepted a job following graduation would report higher levels of upbeat feelings. This part, which used the cheese curl ads, was not supported because the means for the two groups were not significantly different ( $t(29) = .92, p = .1810$ ). The mean for the "no job" group (mean = 21.00) was higher than the mean for the "job" group (mean = 18.80), which was opposite of what was predicted. The pretzel ads were also used, but there were also no significant results found ( $t(29) = -.08, p = .4670$ ). The mean for the "no job" group

(mean = 20.46) was only slightly lower than the mean for the “job” group (mean = 20.80).

The second hypothesis was also split into three parts; the first part was that subjects exposed to sexually subliminal messages would report higher levels of negative feelings. Data were analyzed using difference of means tests for two independent groups. The first group was the sexual embed group with the cheese curl ad and the second was the control group with the cheese curl ad. There was no support found for the first part of this hypothesis, as the means were not significantly different ( $t(89) = -.52, p=.3010$ ). The mean for the embed group (mean = 8.40) was higher than the control group (mean = 8.66), which was in the direction hypothesized. This test was also done with the pretzels ad, using the same two groups. There was no significant difference for these groups as well ( $t(89) = -.02, p=.4910$ ). The mean for the embedded pretzel ad group (mean=8.33) was lower than the mean for the control pretzel ad group (mean=8.34). The second part of this hypothesis was that subjects exposed to a job embed subliminal message would report higher levels of negative feelings. The first group was the job embed group with the cheese curl ad and the second was the control group with the cheese curl ad. There was no support found for the second hypothesis, as the means were not significantly different ( $t(90) = -.85, p=.1980$ ). The mean for the embed group (mean = 8.23) was actually lower than the control group (mean = 8.66), which was in the opposite direction as hypothesized. This test was also done with the pretzels ad, using the same two groups. There was no significant difference for these groups as well ( $t(90) = 1.15, p=.1260$ ). The mean for the embedded pretzel ad group (mean=8.94) was higher than the mean for the control pretzel ad group (mean=8.34). The last part of the second hypothesis was that

among subjects exposed to the job embed ad, those who have not accepted a job following graduation would report higher levels of negative feelings. This part, done with cheese curl ads, was not supported because the means for the two groups were not significantly different ( $t(29) = .98, p=.1670$ ). The mean for the “no job” group (mean = 8.52) was higher than the mean for the “job” group (mean = 7.60), which was in the direction predicted. The pretzel ads were also used, but there were also no significant results found ( $t(29) = .72, p=.2390$ ). The mean for the “no job” group (mean = 9.08) was only slightly lower than the mean for the “job” group (mean = 8.20).

However, when all the cheese curl ads and the pretzels ads that had the “job” subliminal message were combined, there was a significant result found. The means for the two groups were significantly different ( $t(59)=1.49, p=.071$ ). The mean for the entire “No Job” group (mean = 8.83) was higher than the mean for the “Job” group (mean = 7.71), indicating those without jobs experienced more negative feelings than those who had secured jobs. This finding is the only significant result found in the present study.

The third hypothesis was also split into two parts, the first part was that subjects exposed to sexually suggestive messages would report different judgements than those not exposed to the messages. Data were analyzed using difference of means tests for two independent groups. The first group was the sexual embed group with the cheese curl ad and the second was the control group with the cheese curl ad. No significant results were found as the means were not significantly different ( $t(89)=-1.26, p=.2099$ ). The mean for the embed group (mean = 32.03) was lower than that of the embed group (mean = 34.52). This test was also done with the pretzels ad, using the same two groups. There were also no significant results found as the means were not significantly different ( $t(89)=-1.22,$

$p=.2257$ ). The mean for the embed group (mean = 31.13) was lower than the mean for the control group (mean = 32.93), which was opposite of what was predicted. The second part of the third hypothesis was that subjects exposed to a job embed would report different judgements. The first group was the job embed group with the cheese curl ad and the second was the control group with the cheese curl ad. This hypothesis was not supported as well because the means were not significantly different ( $t(90)=-.91$ ,  $p=.3669$ ). The mean for the embed group (mean = 32.74) was lower than the mean for the control group (mean = 34.52). This same test was also done with the pretzels ads, using the same two groups. There were also no significant results found as the means were not significantly different ( $t(90)=1.31$ ,  $p=.1941$ ). The mean for the embed group (mean = 34.97) was higher than the mean for the control group (mean = 32.93).

The fourth and last hypothesis was also split into two parts, the first part was that subjects exposed to sexually suggestive messages would report higher intentions to purchase the product than those not exposed to the messages. Data were analyzed using difference of means tests for two independent groups. The first group was the sexual embed group with the cheese curl ad and the second was the control group with the cheese curl ad. No significant results were found as the means were not significantly different ( $t(89)=-.96$ ,  $p=.1690$ ). The mean for the embed group (mean = 2.87) was lower than that of the embed group (mean = 3.30), which was in the opposite direction as predicted. This test was also done with the pretzels ad, using the same two groups. There were also no significant results found as the means were not significantly different ( $t(89)=-.41$ ,  $p=.3410$ ). The mean for the embed group (mean = 3.80) was lower than the mean for the control group (mean = 4.02), which was opposite of what was predicted.

The second part of the third hypothesis was that subjects exposed to a job embed would report higher intentions to purchase the product. The first group was the job embed group with the cheese curl ad and the second was the control group with the cheese curl ad. This hypothesis was not supported as well because the means were not significantly different ( $t(89) = .30$ ,  $p = .3820$ ). The mean for the embed group (mean = 3.43) was higher than the mean for the control group (mean = 3.30). This same test was also done with the pretzels ads, using the same two groups. There were also no significant results found as the means were not significantly different ( $t(90) = -.75$ ,  $p = .2270$ ). The mean for the embed group (mean = 3.65) was lower than the mean for the control group (mean = 4.02).

### **Discussion**

The purpose of this study was to examine the effects of subliminal messages in print advertisements. In general, it was found subliminal messages have no significant effects on feelings, either upbeat or negative, attitudes, judgements, or purchase intentions. These findings are consistent with previous research in this area. So, this study is more evidence that subliminal messages are not an effective way to advertise. One way that this study was different from previous research is that it used an additional embed topic. Most of the previous studies used a sexual embed of some kind, but this study also used the word "job." There was a significant effect found with negative feelings when using this additional embed topic. When the "job" embed was used in the cheese curl and pretzel ads, the subjects who had not accepted a job after graduation indicated higher negative feelings. This embed did not affect attitudes, judgements, or purchase intentions which is also consistent with previous research.

The use of a new embed topic in this study leads to many questions about the relevance of the embed itself. Does the salience of the embed have something to do with its effectiveness? Would a symbol embed rather than a word embed be more effective, or vice versa? In this study, the use of the "job" embed had a significant effect on negative feelings while the sexual embed did not. This effect is possibly because the embed was more properly suited for the target audience, which was students in a business college. Because sex is more out in the open in all forms of media, sexually suggestive subliminal messages may not be effective as in the past. Because society is more open to talking about sex, researchers interested in subliminal messages may want to continue to search for different cues which might work better for a particular target market.

This study has implications for further research. The additional embed topic is definitely something that needs to be explored. There are some clues in this study, like making the embed relate to a relevant topic for a targeted audience. However, other questions arise when looking at embed topics: would a picture or symbol embed be more effective than a word? Does the length of the word have some effect on the results? Other issues that could be studied are the testing conditions. This study allowed the participants to look at the ad as long as they wished, while a lot of other studies controlled the amount of time. Therefore, this study was more realistic with regard to what would naturally happen when someone views an ad. Thus, this study potentially sacrificed some internal validity for greater external validity.

This study was executed very well and went very smoothly. However, there are some things that could be changed about the study. First of all, the ads used in this study did not contain a brand name. There are numerous reasons why this was not included,

but if there was more time, a brand name would have been created. If one did not want to create his or her own brand name, an existing name could be used. Another item that could have been done differently in this study is the type of media that was used. If there was more time and financing, a TV commercial with embedded subliminal messages could have been produced. It would have been interesting to see what results would come from a similar study using TV commercials as the treatment medium.

### **Ethics and Subliminal Advertising**

Some 75% - 80% of the US population believe that advertisers engage in the practice of embedding images, words, or sounds in print, audio, or video advertising media to help sell their products despite what the advertising industry says (Rogers and Seiler, 1994). There are many different issues that someone can have with subliminal messages. A couple dominant issues are the claim that subliminal advertising causes people to buy unneeded products (Gould, 1994) and the claim that consumers could be faced with an ethical dilemma of whether or not to purchase the brand advertised in an ad if they perceive the ad to have embedded messages (Simpson, Brown, and Widing, 1998).

The first issue, that subliminal messages cause consumers to buy unneeded products, does not have much support because studies have yet to show that there are significant results regarding changing consumers' behaviors. There are many studies (Aylesworth, Goodstein, and Kalra, 1999; Pratkanis and Greenwald, 1988; Edell and Burke, 1987; Fluer and Petranoff, 1959), including this study, that indicate there is no significant effect of subliminal messages on behavior. Marketers promote a wide variety of products and they use all their skills to achieve their marketing objectives. A marketer might test different colored backgrounds in an ad to see which one is more effective, and consumers

are usually not aware of this. Aren't subliminal messages, like the choice of color backgrounds, just another tool that consumers are not aware of? Overall, not one study reviewed here found evidence that subliminal embeds can change consumers' purchase intentions or behaviors.

The other main issue, that people would be faced with ethical dilemmas about purchasing products from companies perceived to use subliminal advertising, is also weak. Companies have two strong reasons not to use subliminal advertising: it is not effective and the reputation of the company is on the line. Since there has been no evidence that subliminal advertising has an effect on behavior, it is not worth the time, effort, and money to produce ads that contain embeds. It takes a lot of money to develop the ads so the embeds cannot be detected and it takes a lot of time to research what the embed would do to consumers. Also, if the company would be accused of using subliminal messages, the reputation of that company would deteriorate. The company does not want to risk the chance of getting caught and being deemed an unethical company. So, consumers should not worry about companies trying to use embedded messages because it is not advantageous for the companies to do so.

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## Appendix A



tasty.

crunchy.

crispy.

NEW

# Cheesy Puffs

# Cheesy Puffs

Mini

crispy.

crunchy.

tasty.





tasty.

crunchy.

crispy.



# Cheesy Puffs

# Zesty Pretzels

NEW

crispy.

crunchy.

tasty.

When you're  
hungry, reach  
for a bag of  
Zesty Pretzels!



# Zesty Pretzels

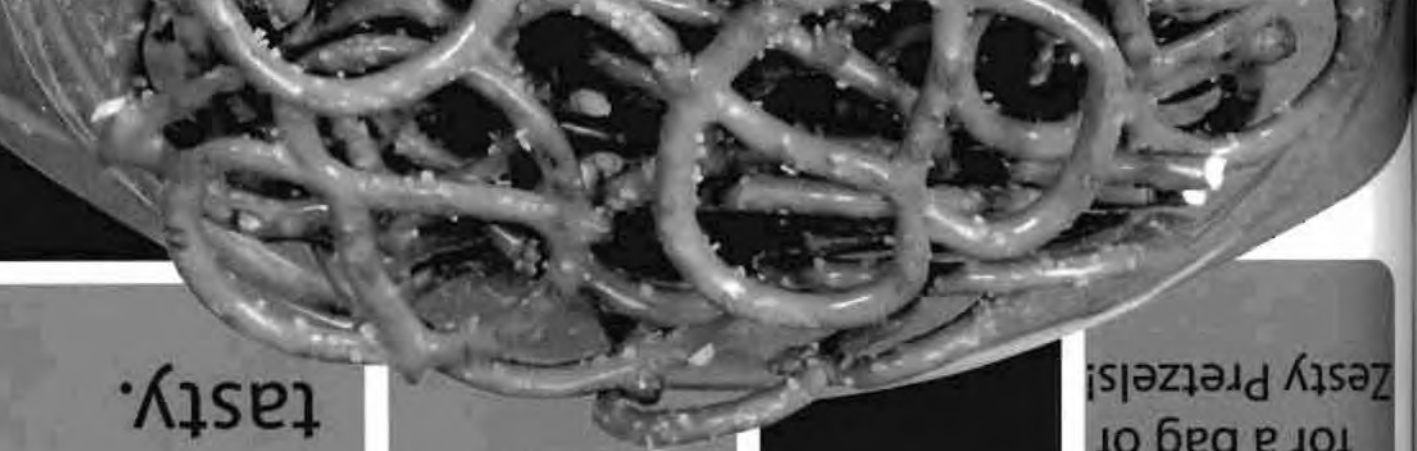
NEW

crispy.

crunchy.

tasty.

When you're  
hungry, reach  
for a bag of  
Zesty Pretzels!



# Zesty Pretzels

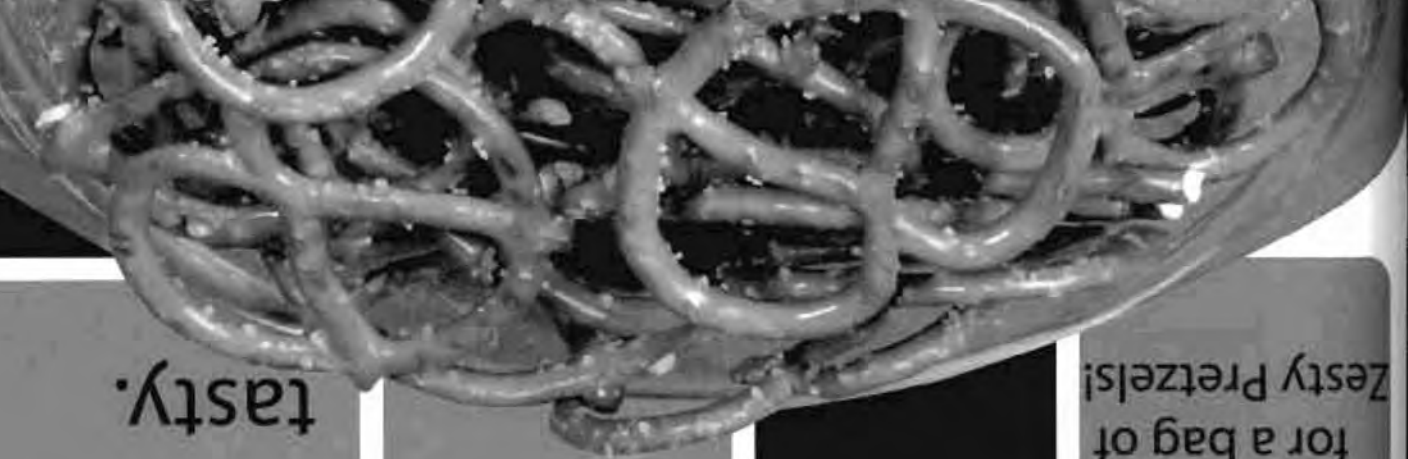
NEW

crispy.

crunchy.

tasty.

When you're  
hungry, reach  
for a bag of  
Zesty Pretzels!



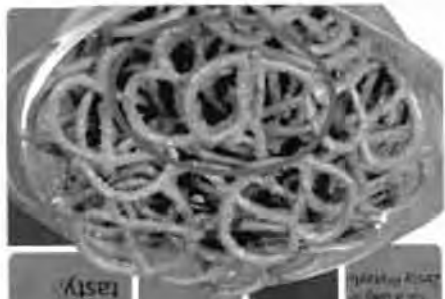


Control



Job Embed

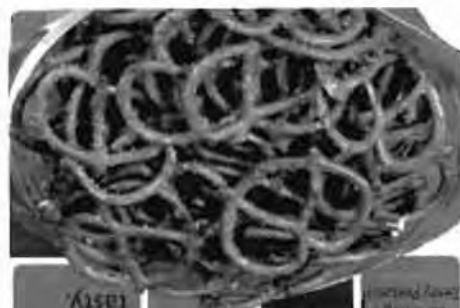
Zesty Pretzels



NEW!  
Zesty Pretzels  
crispy,  
crunchy,  
tasty.

Zesty Pretzels

Job Embed



NEW!  
Zesty Pretzels  
crispy,  
crunchy,  
tasty.

Zesty Pretzels

Control

## Appendix B

### Statement of Informed Consent

Butler University requires that all persons who participate in research projects give their written consent to do so. Today, you are being asked to participate in a research project that will help in the completion of the requirements for graduation in the Honor's Program.

To voluntarily participate in this study, please read the consent statement and then sign and date this form. Once you are completely finished this study, please turn the packet over and wait until others are finished. If you have any questions, please contact my thesis advisor, Bob Mackoy, at 940-9694. Thank you for your participation.

"I agree to participate in this study. I understand that my participation is completely voluntary and that the information I provide will be confidential."

---

Printed Name

---

Signature

---

Date

## Evaluating Consumers Thoughts and Feelings in Response to Print Ads

Advertisers have long been interested in understanding both consumers' thoughts and feelings in response to an ad. While much of the focus of ad research has investigated television commercials, this study concerns the types of thoughts and feelings consumers generate in response to print advertisements.

The questionnaire will take under 10 minutes to complete. Your responses are completely anonymous. You will not be identified as an individual, and all results will be reported in an aggregate form only.

There are no right or wrong answers; please just let us know what you think and feel. If you are uncertain about an answer, please choose the answer that is closest to what you think or feel. These questions ask you either to put an X in the appropriate space, or to circle an answer.

Please fill out the pre-questions before starting the study. Then, **look at the following ad for the same amount of time you would if you were interested in the ad and ran across it in a magazine.** Once you have finished looking at the first ad, answer the questions related to the ad on the following page. Repeat this process with the second ad and second set of questions. Finally, please fill out the background questions on the last page.

Thank You!!

### Pre-questions:

1. On average, about how many times a week do you look through a magazine?  
\_\_\_\_\_ time(s) per week
2. On average, about how many times a week do you eat snack foods?  
\_\_\_\_\_ time(s) per week



tasty.

crunchy.

crispy.



# Cheesy Puffs

After viewing the ad, please indicate on a scale of 1 to 5 the extent to which you experienced the feelings below.

- 1 = Did not experience feeling at all  
 2 = Experienced feeling slightly  
 3 = Experienced feeling somewhat  
 4 = Experienced feeling strongly  
 5 = Experienced feeling very strongly

Affectionate	1	2	3	4	5	Interested	1	2	3	4	5
Amused	1	2	3	4	5	Kind	1	2	3	4	5
Aroused	1	2	3	4	5	Moved	1	2	3	4	5
Bored	1	2	3	4	5	Peaceful	1	2	3	4	5
Caring	1	2	3	4	5	Proud	1	2	3	4	5
Cheerful	1	2	3	4	5	Sad	1	2	3	4	5
Confident	1	2	3	4	5	Satisfied	1	2	3	4	5
Defiant	1	2	3	4	5	Sentimental	1	2	3	4	5
Fearful	1	2	3	4	5	Stimulated	1	2	3	4	5
Happy	1	2	3	4	5	Suspicious	1	2	3	4	5
Hopeful	1	2	3	4	5	Regretful	1	2	3	4	5
Inspired	1	2	3	4	5	Warmhearted	1	2	3	4	5

Please report how well each item below *described* the ad.

- 1 = Item does not describe the ad at all  
 2 = Item describes the ad slightly  
 3 = Item describes the ad somewhat  
 4 = Item describes the ad pretty well  
 5 = Item describes the ad extremely well

Bad	1	2	3	4	5	Likable	1	2	3	4	5
Believable	1	2	3	4	5	Phony	1	2	3	4	5
Exciting	1	2	3	4	5	Playful	1	2	3	4	5
Gentle	1	2	3	4	5	Ridiculous	1	2	3	4	5
Humorous	1	2	3	4	5	Serene	1	2	3	4	5
Imaginative	1	2	3	4	5	Soothing	1	2	3	4	5
Imitating	1	2	3	4	5	Unique	1	2	3	4	5
Informative	1	2	3	4	5	Vigorous	1	2	3	4	5
Ingenious	1	2	3	4	5	Worth Remembering	1	2	3	4	5

Please indicate your attitude towards the ad on the following 7-point scales.

Likeable	1	2	3	4	5	6	7	Dislikable
Favorable	1	2	3	4	5	6	7	Unfavorable
Good	1	2	3	4	5	6	7	Bad

If this product were available, how likely would you be to actually purchase this product? Please indicate your **purchase intentions** using the following 10-point scale.

Not at all likely										Very Likely
	1	2	3	4	5	6	7	8	9	10

# Zesty Pretzels

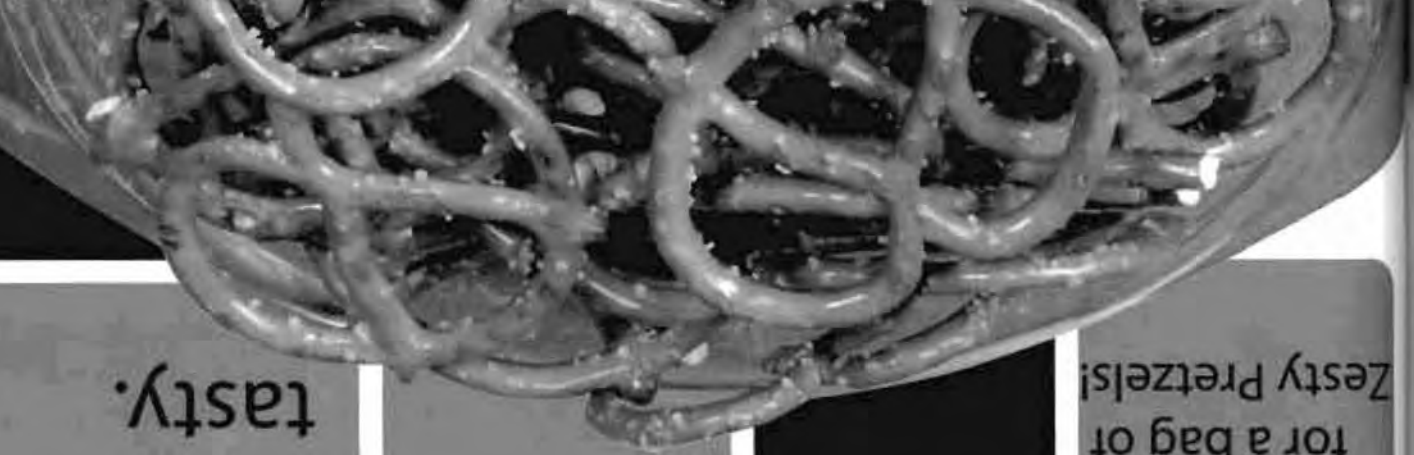
NEW

crispy.

crunchy.

tasty.

When you're  
hungry, reach  
for a bag of  
Zesty Pretzels!



After viewing the ad, please indicate on a scale of 1 to 5 the extent to which you experienced the feelings below.

- 1 = Did not experience feeling at all
- 2 = Experienced feeling slightly
- 3 = Experienced feeling somewhat
- 4 = Experienced feeling strongly
- 5 = Experienced feeling very strongly

Affectionate	1	2	3	4	5	Interested	1	2	3	4	5
Amused	1	2	3	4	5	Kind	1	2	3	4	5
Aroused	1	2	3	4	5	Moved	1	2	3	4	5
Bored	1	2	3	4	5	Peaceful	1	2	3	4	5
Caring	1	2	3	4	5	Proud	1	2	3	4	5
Cheerful	1	2	3	4	5	Sad	1	2	3	4	5
Confident	1	2	3	4	5	Satisfied	1	2	3	4	5
Defiant	1	2	3	4	5	Sentimental	1	2	3	4	5
Fearful	1	2	3	4	5	Stimulated	1	2	3	4	5
Happy	1	2	3	4	5	Suspicious	1	2	3	4	5
Hopeful	1	2	3	4	5	Regretful	1	2	3	4	5
Inspired	1	2	3	4	5	Warmhearted	1	2	3	4	5

Please report how well each item below *described* the ad.

- 1 = Item does not describe the ad at all
- 2 = Item describes the ad slightly
- 3 = Item describes the ad somewhat
- 4 = Item describes the ad pretty well
- 5 = Item describes the ad extremely well

Bad	1	2	3	4	5	Likable	1	2	3	4	5
Believable	1	2	3	4	5	Phony	1	2	3	4	5
Exciting	1	2	3	4	5	Playful	1	2	3	4	5
Gentle	1	2	3	4	5	Ridiculous	1	2	3	4	5
Humorous	1	2	3	4	5	Serene	1	2	3	4	5
Imaginative	1	2	3	4	5	Soothing	1	2	3	4	5
Imitating	1	2	3	4	5	Unique	1	2	3	4	5
Informative	1	2	3	4	5	Vigorous	1	2	3	4	5
Ingenious	1	2	3	4	5	Worth Remembering	1	2	3	4	5

Please indicate your attitude towards the ad on the following 7-point scales.

Likeable	1	2	3	4	5	6	7	Dislikable
Favorable	1	2	3	4	5	6	7	Unfavorable
Good	1	2	3	4	5	6	7	Bad

If this product were available, how likely would you be to actually purchase this product? Please indicate your **purchase intentions** using the following 10-point scale.

Not at all likely										Very Likely
	1	2	3	4	5	6	7	8	9	10

**Background Information:**

What is your gender?    ☐ Male    ☐ Female

What is your age? \_\_\_\_\_ years

What year are you in school?

☐ Freshman    ☐ Sophomore    ☐ Junior    ☐ Senior

What is your major? \_\_\_\_\_

Marital Status:

☐ Married

☐ Single

☐ In a serious relationship, but not married

☐ Other (please describe) \_\_\_\_\_

In general, how do you rate your health?

☐ Excellent    ☐ Good    ☐ Fair    ☐ Poor

Do you wear contacts or glasses?    ☐ Yes    ☐ No

Approximately how many times a week do you exercise? \_\_\_\_\_ times per week

Do you like pretzels? \_\_\_\_\_

Do you like cheese curls? \_\_\_\_\_

If you are an undergraduate, do you have a job lined up after graduation? \_\_\_\_\_

If so, are you happy with that choice?

\_\_\_\_\_  
\_\_\_\_\_

What do you think is the purpose of this study?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Thank You!!**

**Your participation is helpful to a Butler University Marketing Student.**

## Appendix C

After viewing the ad, please indicate on a scale of 1 to 5 the extent to which you experienced the feelings below.

- 1 = Did not experience feeling at all  
 2 = Experienced feeling slightly  
 3 = Experienced feeling somewhat  
 4 = Experienced feeling strongly  
 5 = Experienced feeling very strongly

Affectionate	1	2	3	4	5	Interested	1	2	3	4	5
Amused	1	2	3	4	5	Kind	1	2	3	4	5
Aroused	1	2	3	4	5	Moved	1	2	3	4	5
Bored	1	2	3	4	5	Peaceful	1	2	3	4	5
Caring	1	2	3	4	5	Proud	1	2	3	4	5
Cheerful	1	2	3	4	5	Sad	1	2	3	4	5
Confident	1	2	3	4	5	Satisfied	1	2	3	4	5
Defiant	1	2	3	4	5	Sentimental	1	2	3	4	5
Fearful	1	2	3	4	5	Stimulated	1	2	3	4	5
Happy	1	2	3	4	5	Suspicious	1	2	3	4	5
Hopeful	1	2	3	4	5	Regretful	1	2	3	4	5
Inspired	1	2	3	4	5	Warmhearted	1	2	3	4	5

How will this

be used?

How much?

## Appendix D

Please report how well each item below *described* the ad.

- 1 = Item does not describe the ad at all  
 2 = Item describes the ad slightly  
 3 = Item describes the ad somewhat  
 4 = Item describes the ad pretty well  
 5 = Item describes the ad extremely well

Bad	1	2	3	4	5	Likable	1	2	3	4	5
Believable	1	2	3	4	5	Phony	1	2	3	4	5
Exciting	1	2	3	4	5	Playful	1	2	3	4	5
Gentle	1	2	3	4	5	Ridiculous	1	2	3	4	5
Humorous	1	2	3	4	5	Serene	1	2	3	4	5
Imaginative	1	2	3	4	5	Soothing	1	2	3	4	5
Imitating	1	2	3	4	5	Unique	1	2	3	4	5
Informative	1	2	3	4	5	Vigorous	1	2	3	4	5
Ingenious	1	2	3	4	5	Worth Remembering	1	2	3	4	5

www.ksars.org

KSARS  
KANSAS STATE ARCHIVES

## Appendix E

Please indicate your attitude towards the ad on the following 7-point scales.

Likeable	1	2	3	4	5	6	7	Dislikable
Favorable	1	2	3	4	5	6	7	Unfavorable
Good	1	2	3	4	5	6	7	Bad

If this product were available, how likely would you be to actually purchase this product? Please indicate your **purchase intentions** using the following 10-point scale.

Not at all likely									Very Likely
	1	2	3	4	5	6	7	8	9 10

## Appendix F

### Hypothesis Test (H1a): Independent Groups (t-test, pooled variance)

Upbeat Feelings "Sex" Embed  
Cheese Curls

Embed	Control	
18.67	19.84	mean
5.94	6.91	std. dev.
30	61	n

89 df  
-0.79 t  
.2150 p-value (one-tailed)

### Hypothesis Test (H1a): Independent Groups (t-test, pooled variance)

Upbeat Feelings "Sex" Embed  
Pretzels

Embed	Control	
17.87	19.54	mean
5.58	7.01	std. dev.
30	61	n

89 df  
-1.14 t  
.1280 p-value (one-tailed)

### Hypothesis Test (H1b): Independent Groups (t-test, pooled variance)

Upbeat Feelings "Job" Embed  
Cheese Curls

Embed	Control	
20.29	19.84	mean
6.18	6.91	std. dev.
31	61	n

90 df  
0.31 t  
.3790 p-value (one-tailed)

### Hypothesis Test (H1b): Independent Groups (t-test, pooled variance)

Upbeat Feelings "Job" Embed  
Pretzels

Embed	Control	
20.52	19.54	mean
8.07	7.01	std. dev.
31	61	n

90 df  
0.60 t  
.2750 p-value (one-tailed)

### Hypothesis Test (H1c): Independent Groups (t-test, pooled variance)

Upbeat Feelings

Cheese Curls

No job	Job	
21.00	18.80	mean
6.73	4.78	std. dev.
21	10	n

29 df  
0.92 t  
.1810 p-value (one-tailed)

### Hypothesis Test (H1c): Independent Groups (t-test, pooled variance)

Upbeat Feelings

Pretzels

No Job	Job	
20.46	20.80	mean
8.46	6.42	std. dev.
26	5	n

29 df  
-0.08 t  
.4670 p-value (one-tailed)

### Hypothesis Test (H2a): Independent Groups (t-test, pooled variance)

Negative Feelings "Sex" Embed

Cheese Curls

Embed	Control	
8.40	8.66	mean
2.14	2.21	std. dev.
30	61	n

89 df  
-0.52 t  
.3010 p-value one-tailed)

### Hypothesis Test (H2a): Independent Groups (t-test, pooled variance)

Negative Feelings "Sex" Embed

Pretzels

Embed	Control	
8.33	8.34	mean
1.95	2.25	std. dev.
30	61	n

89 df  
-0.02 t  
.4910 p-value (one-tailed)

### Hypothesis Test (H2b): Independent Groups (t-test, pooled variance)

Negative Feelings "Job" Embed  
Cheese Curls

Embed	Control	
8.23	8.66	mean
2.45	2.21	std. dev.
31	61	n

90 df  
-0.85 t  
.1980 p-value (one-tailed)

### Hypothesis Test (H2b): Independent Groups (t-test, pooled variance)

Negative Feelings "Job" Embed  
Pretzels

Embed	Control	
8.94	8.34	mean
2.48	2.25	std. dev.
31	61	n

90 df  
1.15 t  
.1260 p-value (one-tailed)

### Hypothesis Test (H2c): Independent Groups (t-test, pooled variance)

Negative Feelings "Job" Embed  
Cheese Curls

No Job	Job	
8.52	7.60	mean
2.68	1.84	std. dev.
21	10	n

29 df  
0.98 t  
.1670 p-value (one-tailed)

### Hypothesis Test (H2c): Independent Groups (t-test, pooled variance)

Negative Feelings "Job" Embed  
Pretzels

No Job	Job	
9.08	8.20	mean
2.54	2.17	std. dev.
26	5	n

29 df  
0.72 t  
.2390 p-value (one-tailed)

Hypothesis Test (H2c): Independent Groups (t-test, pooled variance)

Negative Feelings "Job" Embed

Cheese Curls and Pretzels

No Job	Job	
8.83	7.71	mean
2.59	1.94	std. dev.
47	14	n

59 df  
1.49 t  
.0710 p-value (one-tailed)

Hypothesis Test (H3a): Independent Groups (t-test, pooled variance)

Judgements "Sex" Embed

Cheese Curls

Embed	Control	
32.03	34.52	mean
7.95	9.25	std. dev.
30	61	n

89 df  
-1.26 t  
.2099 p-value (two-tailed)

Hypothesis Test (H3a): Independent Groups (t-test, pooled variance)

Judgements "Sex" Embed

Pretzels

Embed	Control	
31.13	32.93	mean
7.30	6.26	std. dev.
30	61	n

89 df  
-1.22 t  
.2257 p-value (two-tailed)

Hypothesis Test (H3b): Independent Groups (t-test, pooled variance)

Judgements "Job" Embed

Cheese Curls

Embed	Control	
32.74	34.52	mean
8.20	9.25	std. dev.
31	61	n

90 df  
-0.91 t  
.3669 p-value (two-tailed)

### Hypothesis Test (H3b): Independent Groups (t-test, pooled variance)

Judgements "Job" Embed  
Pretzels

Embed	Control	
34.97	32.93	mean
8.40	6.26	std. dev.
31	61	n

90 df  
1.31 t  
.1941 p-value (two-tailed)

### Hypothesis Test (H4a): Independent Groups (t-test, pooled variance)

Purchase Intentions "Sex" Embed  
Cheese Curls

Embed	Control	
2.87	3.30	mean
1.93	2.03	std. dev.
30	61	n

89 df  
-0.96 t  
.1690 p-value (one-tailed)

### Hypothesis Test (H4a): Independent Groups (t-test, pooled variance)

Purchase Intentions "Sex" Embed  
Pretzels

Embed	Control	
3.80	4.02	mean
2.22	2.43	std. dev.
30	61	n

89 df  
-0.41 t  
.3410 p-value (one-tailed)

### Hypothesis Test (H4b): Independent Groups (t-test, pooled variance)

Purchase Intentions "Job" Embed  
Cheese Curls

Embed	Control	
3.43	3.30	mean
2.13	2.03	std. dev.
30	61	n

89 df  
0.30 t  
.3820 p-value (one-tailed)

# Hypothesis Test (H4b): Independent Groups (t-test, pooled variance)

Purchase Intentions "Job" Embed

Pretzels

Embed	Control	
3.65	4.02	mean
1.82	2.43	std. dev.
31	61	n

90 df

-0.75 t

.2270 p-value (one-tailed)