Final Research Paper

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Social norming theory combined with fear appeal: An experimental examination of the influence of graphic images in anti-tobacco messages on LSU students

The purpose of this study is to test the effects of social norms media campaigns. In previous studies, social norms media campaigns have aided in the decrease of harmful behavior among students. It is our belief that when researched and executed correctly a social norms media campaign combined with an appeal to fear will be more effective in decreasing the amount of LSU students who use tobacco. Therefore our campaign is designed to appeal to the fear of the consequences of smoking, and will be more effective in decreasing the number of LSU tobacco users. The reason it is important to reduce the number of tobacco users at LSU is because 1,200 people die each day from a tobacco related disease. On average, one person dies every six seconds because of tobacco products (*Annual Smoking-Attributable Mortality, Years of Potential Life Lost and Productivity Losses-United States, 2000-2004*).

This experiment will be conducted to test the hypothesis that effective social media norms campaigns combined with the fear appeal will have a greater effect of decreasing tobacco use in LSU students. We believe by adding the emotion of fear to our ads, it will reduce the number of tobacco users. By invoking fear, students will have better knowledge of the threats and dangers of tobacco use (Tanner, Hunt, Eppright, 1991). This experiment will be a one shot case study using two social norming ads and two new ads appealing to fear as the stimulus to measure the responses of LSU students. The independent variables will be the two pairs of social norms ads and the dependent variables will be the opinions of the students. Opinions would be defined as the student's change in judgment toward the use of tobacco (Tanner, Hunt, Eppright, 1991). The change will have a direct relationship with exposure to the ads. Using purposive

sampling, at least 50 participants will be chosen, some tobacco users and non-tobacco users. This experiment is a within subjects design where the 50 participants will receive both sets of messages, thus eliminating the control group. One of the things we hope to measure in this experiment is the change in participants' personal opinions of themselves. These opinions will demonstrate how participants personally feel about using tobacco. Also, we want to measure the change in attitude toward the use of tobacco. This will be evident in the question responses following the ads, thus revealing the effectiveness of the ad. The effectiveness of the ad will also influence intended behavior. In the end, we would like to decrease the percentage of LSU students who use tobacco.

There are many questions that we will inquire in order to guide our research. First, it is important to understand why a student would initially begin to use tobacco. Since the mid-1970s, smoking has increasingly become more negatively viewed as social norms and views change (Gutman, 2011). According to Gutman (2011), it's the perception of risk as well as peer, family and society's opinion of smoking that help shape individuals' decisions to use tobacco. Through an experiment we would like to find out which one of the factors has the most influence on the participants to begin using tobacco. After analyzing the results, we want to identify which factor has the majority of influence among participants. For example, if 60 percent of the participants first began smoking due to peer pressure, then that would be the majority.

Another question that will guide our research is how often participants use tobacco. We feel it is important to know if the participants use tobacco on a regular basis (i.e., addicted), or if they just use tobacco on social occasions (i.e., with friends, only when they drink, etc). It is important to know how participants categorize themselves either as social tobacco users or regular tobacco users. In a recent study, it was found that most students say that they are social

tobacco users even though they use tobacco more often than a social user. They do not want to admit to being a habitual smoker (Levinson, Campo, Gascoigne, Jolly, Zakharyan and Tran, 2013).

One other question that we want to investigate is whether or not the participants are aware of the health risks and dangers to themselves and others by using tobacco. Not only do we want to know if they are aware of the dangers, but do they even care about them. As of August 2, 2013 a study conducted that people who were more aware of the dangers of tobacco use were more likely to quit smoking (Action to Quit, 2013). We would like to see if the same results would be rendered by a study conducted on LSU students.

We hope that this experiment will support our hypothesis that social norms media campaigns must be researched and executed correctly in order to be effective. We believe that the use of fear in the ad will cause tobacco users to quit using and reduce the use among LSU students. According to Tanner et al. (1991), fear significantly affects behavior because most people seek ways to remove or cope with the threat stemmed from fear. We believe that this will be more effective than the social norming ads designed by the health center because it will appeal to the student's emotions and invoke change. These changes in the campaigns will have increased effects on students' personal opinions of themselves, attitude change and intended behavior. The results of the study will hopefully contribute more support to the social norming theory, as well as to reduce the number of students who use tobacco at LSU. If our hypothesis is supported by the results of the experiment then the ads and results can be given to the student health center to make their campaign more effective.

We believe in our study we will find that most students use tobacco because of peer pressure. Another thing we expect to find is students who regularly use tobacco will classify

themselves as social users because they do not want to admit how often they use tobacco. We expect to find that the reason people use tobacco so often is because they are uneducated of the true dangers of tobacco. Once the participants are informed of the dangers, the information will invoke a behavioral change toward a healthier lifestyle. A healthier lifestyle would be a reduction of number of people who use tobacco.

The importance of study would be to inform students of the dangers of tobacco use. Also, we would like to reduce the number of users through the provided information to make a healthier campus. Since we used the emotion of fear in our ad, we believe that our appeal will be more effective. Thus, we can provide the LSU Student Health Center with a more effective way of reaching students and invoking change in students' behavior. In addition to affecting LSU students, we want our results to be able to be applied to a broader public, such as Louisiana residents. In the end, we want to contribute our research to existing social norming theory applied to tobacco.

Literature Review

First introduced in 1986 by Perkins and Berkowitz, social norming theory's overall goal was to reduce the number of students who consumed alcohol. Since then social norming theory has been used by universities to reduce the number of students who participate in activities that are harmful to their health and well-being such as: tobacco use, driving under the influence, not using a seat belt and sexual assault. The ideal audience for social norming theory would be college students but in the past it has been used on high school students as well (*Social Norming Theory,* 2013).

The focus of social norming theory is to look at what influences a person, or specifically, in this case, a college student. Some of the influences that social norming theory seeks to

understand are students' interpersonal influences. For example, how their peers and their environment influence change, or affect he or she's individual behavior and decision-making. When applied to college campuses, the main influence is peers. When studying the behaviors of youth, studies have found that peer influences are affected more by perceived norms, which are defined as what we view as a normal in a group, rather than on actual norms. Actual norms are defined as the actual beliefs and actions of the group. The space between the perceived and actual is known as misperception, and this creates the backbone for the social norming approach (*Social Norming Theory,* 2013).

Social norming theory states that we behave and decide based on the influences and misperceptions of how our peers think and act. In other words, if we believe that a large majority of our peers are partaking in problematic behavior; then it is more likely that we will also partake in problematic behavior. Similarly if we believe that a large amount of our peers are not participating in problematic behavior then we will be less likely to participate in problematic behavior (*Social Norming Theory,* 2013).

Background of Social Norms Media Campaigns

The reason a lot of social norms media campaigns on college campuses are centered on social norming theory is because it is believed that by correcting the misperception of the number of people thought to be participating in a certain action and the actual number of people participating will most likely decrease the number of students participating in problematic behavior. It decreases the reason for participating in a harmful or problematic behavior because students believe, "everyone is doing it, so I should too." The purpose of social norming campaigns is to bridge the gap known as misperception of how peers think and act (*Social Norming Theory,* 2013).

In social norms media campaigns the misperceptions are corrected through community-wide electronic or print media that endorse the correct and healthy norms about behavior. Past social norms media campaigns have been conducted in phases. The first phase is the collection of data to inform the audience of the message. Then the second one is to select the normative message that will be dispersed to the public. Third, testing the message with the target audience, and observing how the message is received. If the message is well received then the creators of the ad will decide the mode in which the message is to be delivered. Next, the creators will decide the amount or extent of the message the audience will receive. Finally, they will evaluate the efficiency of the message (*Social Norming Theory,* 2013).

Limitations of Social Norming Theory

Before social norming theory can be used it is important to understand the limitations surrounding the theory. The first limitation is understanding that the intended audience will question the original message offered to them because they believe strongly in the misperceptions. In order to persuade the audience the information you are presenting has to be offered in a reliable way (*Social Norming Theory,* 2013).

The second limitation is affected by the first phase of a social norms media campaign and that is the gathering of data. If there is poor gathering of data in that initial stage then the data will be viewed as unreliable and will be a bad choice of a normative message. This can ruin the entire campaign and just reinforce or encourage the misperceptions that the audience already believes (*Social Norming Theory,* 2013).

The third limitation to understand is that if the sources where the information was gathered is not creditable to the target audience then the message being conveyed will not be relevant to the audience and will not appeal to them. In order for the message to have an

effective impact the audience needs to be exposed to the right amount of the message. The audience should not have too much exposure to the message. If there is too much exposure, the message will become ordinary and unimportant to the audience (*Social Norming Theory,* 2013).

Despite these limitations, in the past social norming theory has been known to be successful in changing individual behavior. It has been successful at focusing on correcting the misconceptions at a group level. Social norming theory cause people attempt to fit in with the perceived norm (Kearney, Manley, & Mendoza, 2013). The most effective social norms interventions are those that targeted a specific audience that are part of the at-risk population. According to Kearney et al., (2013), evidence has supported that social norming theory has a "positive effect on changing behaviors in college-age populations." They are usually more effective when offered in an interactive environment or format that engages the audience (*Social Norming Theory,* 2013).

Background of Student Tobacco Use

The use of tobacco is considered a harming or problematic behavior. In America, smoking tobacco can account for 440,000 deaths, or nearly one of every five deaths each year (*Health Effects of Cigarette Smoking - Smoking & Tobacco Use*, 2013). As of August 8, 2013 it was recorded that a third of college students are current users of tobacco, which included cigarettes, chewing tobacco and cigars (A Third of College Students Smoke, 2013). So what caused these students to take on smoking despite the deadly statistics? Most studies say the number one reason is peer pressure. Most people begin smoking as young teens, which is also the age a person is most susceptible to fall to peer pressure. If a teen falls into a group of friends who use tobacco it is more than likely that they will also experiment with it because it is easy to access. This correlates with the saying that no smoker wants to be alone, and the nonsmokers do not

want to come across as being afraid to try something risky (Cunningham, 2013). Currently, tobacco usage is rising among young adults and threatens to reverse the previous decline in the number of US adults that smoke in the past half-century (A Third of College Students Smoke, 2013). In attempt to halt this reversal, social norming theory has been applied to college campuses in order to reduce the number of people who use tobacco.

Background of Social Norming Theory applied to Tobacco

For years, social norming theories about smoking have been investigated in order to determine its influences on behavioral changes. It is known that shifts in behavior often coincide with current trends in society. Millennials strive to keep up with what's current, as well as seek approval (Jordan, 2013). Thus, they tend to follow the actions and beliefs of the people they are surrounded by. Social norms and attitudes can have a direct effect regarding young tobacco users.

For example, the University of Wisconsin Oshkosh developed a social norm campaign in order to reduce smoking rates by four percent on campus. First, the research team gathered information about students' knowledge, opinions and behaviors concerning tobacco. The data that was collected was then used to create the social norms campaign. The university developed multiple posters with the theme "You know you want to…" (*You Know You Want To*: *A Comprehensive Tobacco Reduction Plan,* 2013). Initially, they started off with a teaser and then proceeded with other posters that went with the slogan including: be kissed, be rich, be strong, come in from the cold and get some air. A mannequin named Jane was placed in various places around campus with different messages about tobacco. During homecoming week, an "art car" was driven around campus displaying several campaign themes that had been created. They also used the university's newspaper, residence life movie channel and TV channel, as well as

information tables around campus, educational seminars and group trips to get their message to students. The purpose was to demonstrate how often the students overestimate the amount of people who smoke and find smoking acceptable. The team hoped that this new knowledge about their peers would enable the students to realize how misleading smoking perception is, which would then result in less smokers on campus. After only one semester, the campaign had resulted in a 29.8 percent decrease in the number of student smokers. In a second post-test, it was determined that the percentage of smokers had gone down another 5 percent. (*You Know You Want To*: *A Comprehensive Tobacco Reduction Plan,* 2013). Ultimately, the University of Wisconsin Oshkosh successfully reduced the amount of student smokers and provided support for the social norming theory.

Concepts Defined

Participants' Personal Opinion of Themselves

The change in participants' personal opinion of themselves is directly related to their feelings toward the ad. If tobacco users are exposed to the fear appeal, then they will feel threatened and find a way to remove the threat (Tanner et al. 1991). To remove the threat, users will eventually quit using tobacco. On the other side, non-tobacco users will be proud of themselves for not being part of the statistic.

Participants' Change in Attitude Toward the Use of Tobacco

We would like to measure participant's change in attitude toward the use of tobacco. An effective change from the ads should be an affirmation that tobacco use is harmful. A change in attitude will be influenced from the two sets of ads. Participants should have a stronger belief that tobacco is an unhealthy behavior from the fear ads compared to the social norming ads.

Participants can then make a decision whether or not to change their behavior. Ultimately, a positive attitude change should lead to a healthier behavioral change.

Intended Behavior

Intended behavior would be defined as the intention to change tobacco use. A few of the intended behaviors would be to quit using tobacco, to reduce the amount usage or to become an advocate for the cause to end usage. Another behavior would be no intention of changing tobacco usage, rendering our ad ineffective.

Our Argument

Hypotheses

We believe the use of fear appeal combined with social norming statistics will influence participant's personal opinion of themselves, attitude toward the use of tobacco and intended behavior more than social norming statistics alone. According to Thesenvitz (2000), the strength of the threat will depend on its severity and the person's susceptibility. If the person believes that the threat is serious and they are at risk, they will respond with fear. A fear response will motivate the person to act (Thesenvitz, 2000). By creating an ad that evokes fear we anticipate to increase negative opinions toward tobacco use. Ultimately, we believe by changing their attitudes it will lead to healthier behavior change. This will eventually lead to a reduction of the number of LSU tobacco users, which is our objective for this experiment.

Method

Design

This experiment will be a one shot case study using two LSU Student Health Center ads and two new communication ads as the stimulus to measure the responses of LSU students. The design of a one shot case study has no internal or external validity and also lacks a control group.

The advantage of this type of experiment design is the ability to observe cause and effect. The experiment will show strong evidence that the independent variable, which are the two sets of ads, will have an effect on the participants. Another advantage of this design is that we control what images the participants see. The independent variables that we created will be a result of influence rather than a consequence of an unrecognized phenomenon. The final advantage is other researchers could potentially recreate our experiment, validating our findings (Moore-Copple, 2013). As well as controlling the images participants see, we will control the order of the images, and the time allotted to view them.

We will create four surveys; the only difference between them will be the order of the images. In a one shot case study, there is not a control group but instead, there is an experimental group. Before the study, no observations will be made. "The experimental group is exposed to the independent variable and then observations of the dependent variable are made," (One Shot Case Study). Bassett, Stewart, and Giddings (2012) performed a one-shot case study to evaluate the physical effects of Nordic walking compared to ordinary walking for people with Parkinson's disease. Researchers chose this method because a control group was unnecessary to evaluate. Participants were exposed to both stimuli, Nordic and ordinary walking. Similar to Bassett et al. (2012), our hypothesis does not require a control group.

Participants

We chose to narrow down our participants to LSU students between the ages of 18 and 24. This is because the message pertains to LSU students, and the average age of college students are 18 to 24. We want a random sample of at least 50 students within the age group, with a mix of tobacco users, non-tobacco users and the occasional tobacco users.

In the end, we had 91 out of 105 participants who fully completed our surveys. The majority of our participants were Caucasian (73.3 percent). Thirty-seven (35.2 percent) participants were sophomores, while only 14 (13.3 percent) freshmen participated. Of the 91 participants that completed the survey, 32 (30.5 percent) have been or are currently employed by LSU. In this experiment, the male gender was the outlier. Only nine males (8.6 percent) participated.

Setting and Apparatus

The surveys will be created on an online program known as Qualtrics. Then it will be distributed through the Medial Effect Lab on campus, as well as, various posts on social media platforms. Ultimately, the survey should not take longer than 30 minutes to complete. After the participants take the surveys, the data will be stored in the Qualtrics' results section of the program.

Independent Variable

The independent variables in our experiment will be the two sets of social norming ads: the two we create and the two original ads done by the LSU Student Health Center. We will manipulate the independent variable by appealing to the emotion of fear. In order to evoke fear in participants, we included graphic images portraying the potential results of tobacco use along with the social norming theory statistics. The way we will avoid confounds is by showing both sets of ads to the participants. They will then answer questions about both sets of images and provide feedback that will ultimately show which set of ads is most affective.

Dependent Variable

The dependent variables in our experiment will be the opinions of the students regarding the change in attitude toward the use of tobacco and intended behavior change. The first set of

questions will be based on the change in personal opinions. We will use a seven-point scale measuring how likely a person is to believe numerous statements about tobacco. MacInnis and Park originally created this scale of brand beliefs in 1991 in order to study female undergraduates' beliefs toward shampoo (Brunner, Hensel and James, 1992). The alphas of the likeability scale for the first social norming ad was 0.51, and for the second social norming ad the alpha was 0.53. For the first fear ad, the likeability scale alpha was 0.57, and the likeability scale applied to the second fear ad had an alpha of 0.56

The next set of questions will measure the how favorable a person's attitude regarding the use of tobacco is. This time we will use a seven-point scale measuring the amount of the participants' favorability toward the act of tobacco use. Maheswaran and Meyers-Levy developed these scales in 1990. They conducted this study to measure attitudes toward taking a diagnostic blood test. The first scale asked how useful or not useful the participants thought a diagnostic blood test would be. The second scale asked if the participants thought a blood test would be extremely unfavorable versus extremely favorable. The third scale asked if the participants thought a blood test would be an extremely bad idea or an extremely good idea. The fourth scale asked the participants' opinion of whether or not having a blood test was important or not important (Brunner, Hensel and James, 1992). We chose to use Maheswaran and Meyers-Levy's unfavorable and favorable scale for our survey because it was the scale that best tested our hypothesis. The first social norming ad had an alpha of 0.54 for its favorability scale, and the second social norming ad had an alpha of 0.5. The favorability scale as applied to the first fear ad yielded an alpha of 0.57 and the second fear ad's favorability scale had an alpha 0.52.

The final set of questions deals with the participants' change in behavior. Thus, we chose to use Machleit, Allen and Madden's behavioral intention scale, which they created in 1993. This

scale consists of five scale items measuring "the stated inclination of a person to engage in a specified behavior" (Brunner, Hensel and James, 1992). The five scale items measure the likeliness, existence, probability, possibility and certainty of a participant's reasons for shopping based on their response to Levi and Pepsi ads. Instead of measuring the participants' intentions regarding shopping, we will measure our participants' intentions toward the use of tobacco by using Machleit, Allen and Madden's behavioral intention scale that measures the likelihood of behavior change. The first social norming ad's probability scale had an alpha of 0.52 and the probability scale applied to the second social norming ad yielded an alpha of 0.53. The probability scale applied to the first fear ad had an alpha of 0.56 and the second fear ad's probability scale had an alpha of 0.45.

Procedure

Participants will be recruited from LSU's Media Effects Lab. Links to our surveys will also be posted via Facebook to avoid biases and meet the sample size requirement. The first page of the survey will provide participants with a brief description and purpose of the experiment. Before beginning our survey, participants will read and accept a consent form. The first set of questions on the survey will gauge participant opinion and life style choices regarding tobacco use. Next, the participants will be shown the first ad followed by opinion, attitude and behavior questions toward the ad. The participants will see a total of four ads all paired with the same set of follow-up questions. The order of the ads will vary depending on which of the four surveys the participant takes. The demographic questions will be the next portion of the survey. Following the demographics, students recruited from the Media Effects Lab will be able to provide their MEL identification number to receive credit. A sincere thank you will end the survey to show our appreciation for the participants' time.

Results

This experiment was a one shot case study using two social norming ads and two new fear ads as the stimuli to measure the responses of LSU students. This experiment was conducted to test the hypothesis that effective social norming campaigns would have a greater effect of decreasing tobacco use in LSU students. This experiment was a within subjects design where the 105 participants received both sets of messages, thus eliminating the control group.

Frequency Distributions

Analyzing this data, it was determined that 14 of the 105 participants did not complete the demographics portion of the survey. The frequency distribution for demographics available showed that out of the 91 participants 82 were female and only nine were male, creating a female majority. Additionally, 37 students (35.2 percent) were sophomores and 24 students (22.9 percent) were seniors. Of the 91 participants that completed the survey, 32 (30.5 percent) have been or are currently employed by LSU.

Factor Analysis and Reliability Analysis

Following data entry and recoding, our scale questions was factor analyzed using principal components method with Varimax rotation. The factor analysis produced seven factors with three qualifying eigenvalues (over 1.0). Factor loadings of .50 were considered significant ($p<.05$). Items that either did not load or loaded similarly on two or more factors were dropped.

A reliability analysis was conducted on the first factor (i.e., favorable scale) which accounted for 89.5 percent of the variance and consisted of seven items: how noticeable was the ad, feelings about tobacco after the ad, feelings about tobacco use on campus, probability of use after the ad, social tobacco use after the ad, being against tobacco after the ad and the plan for a

healthier lifestyle after the ad (Cronbach's Alpha =.532). However, the results of the reliability analysis concluded that the items were not reliable because the alpha was a 0.5. The alpha is below the standard of reliability.

Results of the Factor Analysis

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.379	33.981	33.981	2.379	33.981	33.981
2	1.911	27.306	61.286	1.911	27.306	61.286
3	1.112	15.892	77.178	1.112	15.892	77.178
4	.659	9.417	86.595			
5	.354	5.059	91.654			
6	.331	4.728	96.382			
7	.253	3.618	100.000			

Results of the Reliability Test

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Noticeable Ad 2	17.66	34.313	.092	.575
After feelings about tobacco, Ad 2	18.51	35.672	.206	.514
After on campus tobacco, Ad 2	18.79	31.782	.404	.445
After use product often, Ad 2	19.20	30.378	.402	.436
After use in social, Ad 2	18.99	34.075	.173	.530
After advocate, Ad 2	17.56	31.496	.304	.476
After healthy lifestyle, Ad 2	17.07	29.747	.332	.462

Paired Samples *t* Test

A paired samples *t* test was used to examine the differences of dependent variables, participant responses (e.g. attitudes), from the independent variables, which are the two sets of ads. Results indicated that there is a significant difference between the two sets of adds, $t(86) = -14.53$, $p < .05$. The two ads using fear were significantly more effective in evoking a healthier

lifestyle among students (M = 49.7, SD = 11.6) as compared to the social norming ads (M = 35.1, SD = 10.3).

The results of our experiment support our hypothesis that adding the fear of appeal to social normal theory are more effective than social norming ads alone.

Results of T-Test

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	HealthCareCombo	35.1379	87	10.30260	1.10455
	OurAdsCombo	49.6667	87	11.60961	1.24468

Discussion

This experiment was a one shot case study using two social norming ads and two fear ads as the stimulus to measure the responses of LSU students. We believed by adding the emotion of fear to our ads, it would reduce the number of tobacco users. We incorporated fear into the ads by using images displaying the negative effects tobacco products have on the human body. This experiment was conducted to test the hypothesis that effective social norming campaigns would have a greater effect of decreasing tobacco use in LSU students.

One other question that we investigated was, whether or not the participants were aware of the health risks and dangers to themselves and others by using tobacco. As of August 2, 2013 a study conducted that people who were more aware of the dangers of tobacco use were more likely to quit smoking (Action to Quit, 2013). Our results also supported this theory. Based on our statistical evidence, it was apparent that students who understood the dangers and risks of tobacco were more likely to live a healthier lifestyle. The results converged with this previous research. Our research found that the fear ads were more likely to be noticed around campus.

This may be because of the graphic images evoking fear used in our ads, such as the photo of a man with a hole in his neck as a result of smoking tobacco.

General Implications of Findings

The results of our experiment supported our original hypothesis. We found that the ads we created were more effective in changing the attitudes of students toward tobacco products than the social norming ads. We also found that the fear ads generated more attention than the social norming ads. In our ads we used fear to influence the students' opinions of tobacco products. Our results showed that the images in the fear ads were more successful in getting the desired message across to the students. One theoretical implication we found is the ads combined with fear proved to sway the opinion of students in the way we anticipated.

General Limitations of Study

We attempted to avoid primacy and recency effects by counter balancing our questionnaires; however, the length of the questionnaires still had the possibility of experiencing fatigue. Only 71 percent of our participants fully completed the questionnaires. By using Qualtrics Survey Software to create our questionnaire and collect our data, we faced two specific limitations on collecting data. The first limitation we faced was combining the four questionnaires' data. On Qualtrics, it was beneficial to our research to create four separate questionnaires. However, the program did not allow to easily combine the results into one collective data sheet. This limited our ability to analyze our results. This is because the data on Qualtrics was in separate place, making it hard to compare the results. The second limitation we had to overcome was the fact that the program did not recognize that certain results belonged to specific images. Therefore, we had to manually match up results in order to compare. Thus, we had to be extremely precise, which was time consuming. This could have been avoided, and our

results could have had a higher accuracy rate if Qualtrics would have grouped the images with their specific results.

Because our questionnaires asked participants about their personal behavior and opinions of themselves, our results are subject to potential biases. For example, whether a participant is a social smoker is based on their own definition of a social smoker. The representativeness of the sample and the reactive effects of setting were also limitations of our questionnaires. Most of the participants, who volunteered to complete the questionnaire, were participating in order to receive extra credit. These motives could have affected the external and internal validity of the results. A person who volunteers for research projects can be expected to be different from a typical person. The questionnaire was conducted and distributed online; therefore, the setting of the experiment was anywhere the participants decided to access it. We could not control the setting or the conditions of the setting in which the participants answered the questionnaire because it was online. Since the setting online, it was an artificial environment. An artificial setting enhances their attention to the stimuli, which were the ads. An artificial setting can skew results by creating artificial motivation and responses. Also, we cannot generalize our results because we used a nonprobability sample.

Future Directions

To extend our findings in the future, we could do more research on social norming theories. Also, we could look for studies that used more than one appeal. For example, we only used fear in our study, but we could have used another appeal, such as humor, as well as to see if there was a greater change in attitude toward tobacco products. We could improve our study by being more specific with our designs and our questions. For example, we asked the participants if they considered themselves to be “social smokers;” however, we did not clearly define what a

"social smoker" was. Because we did not clarify what constitutes a "social smoker," the students' answers might have been skewed. In regard to the design of the ads, we could improve our study by keeping our designs more consistent instead of changing so much of the original ads.

Confounds prevent researchers from determining what caused what in experiments. In our experiment, our independent variables were the new advertisements that we designed with an appeal to the emotion of fear using social norming statistics. However, we also created a confounding variable by altering more than the design. The graphics included in the new advertisements could have influenced the results of the experiment. The only thing that was kept consistent between the social norming ads and the fear ads was the social norming statistic used. We should have kept as much as we could consistent between the two pairs of ads to eliminate confounding variables. We used one of the Student Health Center statistics in both of ours ads. A way to improve our study would be to recreate both Student Health Center ads rather than recreating only one twice.

Another way to further our research would be to use a different method, and compare the results. For example if we had chosen to conduct a focus group rather than a questionnaire. The responses and findings would have been more detailed, and would have provided better insight into the opinions, attitudes and intended behavior regarding the use of tobacco. This also would have provided a wider sample because the focus group would have had housed more of a variety of participants. The participants would not have been recruited through the MEL; therefore, a majority of the participants would not be mass communication majors.

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Appendix

Purpose
This survey compares the attitudes and responses that LSU students have when exposed to two advertisements using social norming theory and a fear appeal, and two different advertisements just using social norming theory. We hope to gain insight into which method is more effective in changing attitudes and behavior toward tobacco among students at LSU.

Consent Form
This research is being conducted as part of the MC 3020- Public Relations Research course offered by the Manship School of Mass Communication at LSU. I am an LSU student working as part of a public relations team to examine attitudes and perceptions regarding the LSU Student Health Center Kneax the Facts public relations campaign.

We intend to use this information to design a new public relations campaign for the LSU Student Health Center. We anticipate using a sample of individuals who are older than 18 living in the Baton Rouge area as our participants. It is expected that we will need no more than 400 subjects to take part in the experiments.

There is no known risk to participating in any of the experiments. These are promotional pieces you have likely encountered on campus. You are simply being asked to evaluate them. You have to right to refuse or withdraw from participation at any time. Data gathered will be kept confidential with all identifying information removed by researchers prior to sharing findings with the LSU Student Health Center.

Should you have any questions about this research please contact our instructor: Dr. Jensen Moore-Copple at 225-578-6686.

Introduction Questions
I believe tobacco will cause harm to my body.
Improbable Probable

I believe using tobacco will make me more attractive to others.
Improbable Probable

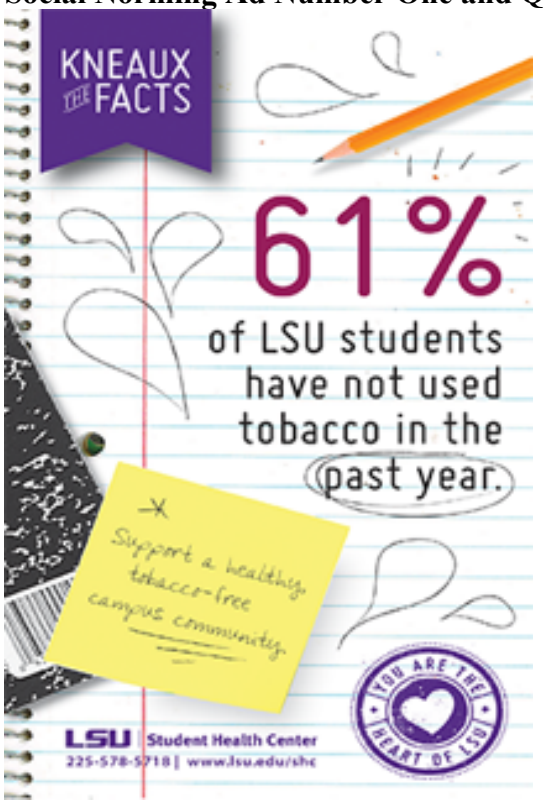
I believe that most people who smoke claim to smoke only occasionally.
Improbable Probable

I believe ads against smoking will promote a healthier lifestyle on campus.
Improbable Probable

Smoking every once in a while is _____ to me.
Unfavorable Favorable

The idea of a decrease in smoking on campus is _____ to me.
Unfavorable Favorable

Social Norming Ad Number One and Questions



If this ad were on campus, I would notice it.
Improbable Probable

After this ad I feel _____ about tobacco.
Unfavorable Favorable

If I saw this ad on campus, I would feel _____ about tobacco.
Unfavorable Favorable

After seeing this ad, I will now use tobacco products often.
Unlikely Likely

After seeing this ad, I will use tobacco products but only in social situations.
Unlikely Likely

After seeing this ad, I will be an advocate against the use of tobacco products.
Unlikely Likely

After seeing this ad, I will strive to live a healthy lifestyle.
Unlikely Likely

Fear Ad Number One and Questions

If this ad were on campus, I would notice it.
Improbable Probable

After this ad I feel _____ about tobacco.
Unfavorable Favorable

If I saw this ad on campus, I would feel _____ about tobacco.
Unfavorable Favorable

After seeing this ad, I will now use tobacco products often.
Unlikely Likely

After seeing this ad, I will use tobacco products but only in social situations.
Unlikely Likely

After seeing this ad, I will be an advocate against the use of tobacco products.
Unlikely Likely

After seeing this ad, I will strive to live a healthy lifestyle.
Unlikely Likely

Social Norming Ad Number Two and Questions

If this ad were on campus, I would notice it.
Improbable Probable

After this ad I feel _____ about tobacco.
Unfavorable Favorable

If I saw this ad on campus, I would feel _____ about tobacco.
Unfavorable Favorable

After seeing this ad, I will now use tobacco products often.
Unlikely Likely

After seeing this ad, I will use tobacco products but only in social situations.
Unlikely Likely

After seeing this ad, I will be an advocate against the use of tobacco products.
Unlikely Likely

After seeing this ad, I will strive to live a healthy lifestyle.
Unlikely Likely

Fear Ad Number Two and Questions

If this ad were on campus, I would notice it.
Improbable Probable

After this ad I feel _____ about tobacco.
Unfavorable Favorable

If I saw this ad on campus, I would feel _____ about tobacco.
Unfavorable Favorable

After seeing this ad, I will now use tobacco products often.
Unlikely Likely

After seeing this ad, I will use tobacco products but only in social situations.
Unlikely Likely

After seeing this ad, I will be an advocate against the use of tobacco products.
Unlikely Likely

After seeing this ad, I will strive to live a healthy lifestyle.
Unlikely Likely

Demographics
What is your gender?
Male
Female

What is your ethnicity?
African American/African
Asian/Asian American/ Pacific Islander
Caucasian
Hispanic/Latino
Middle Eastern/Indian/Arabian
Native American/Alaskan Indian
Other

Are you a part-time or full-time student?
Part-time
Full-time

Are you currently or have ever been employed by LSU?
Yes
No

What is your classification?
Freshman
Sophomore
Junior
Senior

Are you an in-state or out-of-state student?
In-state
Out-of-state

MEL Credit
Please provide your MEL number, so you can receive credit for participating in the survey.
_____

Debriefing
Thank you for taking the time to participate in this survey.

```
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DATASET NAME DataSet3 WINDOW=FRONT.
DATASET ACTIVATE DataSet1.
DATASET CLOSE DataSet2.
DATASET ACTIVATE DataSet1.
DATASET CLOSE DataSet3.
GET
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DATASET NAME DataSet4 WINDOW=FRONT.
DATASET ACTIVATE DataSet1.
DATASET CLOSE DataSet4.
FREQUENCIES VARIABLES=Q19 Q20 Q22 Q23 Q24 Q25
  /STATISTICS=STDDEV RANGE MEAN MEDIAN MODE SKEWNESS SESKEW KURTOSIS SEKURT
  /ORDER=ANALYSIS.
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Frequencies

Notes

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	Cases Used	Statistics are based on all cases with valid data.
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Statistics

		Gender4	Ethnicity4	part-time, full-time4	LSU employee4	Classification4
N	Valid	91	91	91	91	91
	Missing	14	14	14	14	14
Mean		1.90	3.05	1.99	1.65	2.55
Median		2.00	3.00	2.00	2.00	2.00
Mode		2	3	2	2	2
Std. Deviation		.300	.993	.105	.480	1.046
Skewness		-2.732	2.325	-9.539	-.632	.164
Std. Error of Skewness		.253	.253	.253	.253	.253
Kurtosis		5.588	9.893	91.000	-1.637	-1.210
Std. Error of Kurtosis		.500	.500	.500	.500	.500
Range		1	6	1	1	3

Statistics

		in-state or out-of-state4
N	Valid	90
	Missing	15
Mean		1.17
Median		1.00
Mode		1
Std. Deviation		.375
Skewness		1.819
Std. Error of Skewness		.254
Kurtosis		1.339
Std. Error of Kurtosis		.503
Range		1

Frequency Table

Gender4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	9	8.6	9.9	9.9
	Female	82	78.1	90.1	100.0
	Total	91	86.7	100.0	
Missing	System	14	13.3		
Total		105	100.0		

Ethnicity4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	African American/African	5	4.8	5.5	5.5
	Asian/Asian American/ Pacific Islander	3	2.9	3.3	8.8
	Caucasian	77	73.3	84.6	93.4
	Hispanic/Latino	2	1.9	2.2	95.6
	Other	4	3.8	4.4	100.0
	Total	91	86.7	100.0	
Missing	System	14	13.3		
Total		105	100.0		

part-time, full-time4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Part-time	1	1.0	1.1	1.1
	Full-time	90	85.7	98.9	100.0
	Total	91	86.7	100.0	
Missing	System	14	13.3		
Total		105	100.0		

LSU employee4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	32	30.5	35.2	35.2
	No	59	56.2	64.8	100.0
	Total	91	86.7	100.0	
Missing	System	14	13.3		
Total		105	100.0		

Classification4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Freshman	14	13.3	15.4	15.4
	Sophomore	37	35.2	40.7	56.0
	Junior	16	15.2	17.6	73.6
	Senior	24	22.9	26.4	100.0
	Total	91	86.7	100.0	
Missing	System	14	13.3		
Total		105	100.0		

in-state or out-of-state4

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	In-state	75	71.4	83.3	83.3
	Out-of-state	15	14.3	16.7	100.0
	Total	90	85.7	100.0	
Missing	System	15	14.3		
Total		105	100.0		

```
FACTOR
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 /MISSING LISTWISE
 /ANALYSIS Q5 Q7 Q8 Q14 Q15 Q16 Q17
 /PRINT INITIAL EXTRACTION ROTATION
```

```
/CRITERIA MINEIGEN(1) ITERATE(25)
/EXTRACTION PC
/CRITERIA ITERATE(25)
/ROTATION VARIMAX
/METHOD=CORRELATION.
```

Factor Analysis

Notes

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	Cases Used	LISTWISE: Statistics are based on cases with no missing values for any variable used.
Syntax		FACTOR /VARIABLES Q5 Q7 Q8 Q14 Q15 Q16 Q17 /MISSING LISTWISE /ANALYSIS Q5 Q7 Q8 Q14 Q15 Q16 Q17 /PRINT INITIAL EXTRACTION ROTATION /CRITERIA MINEIGEN(1) ITERATE (25) /EXTRACTION PC /CRITERIA ITERATE(25) /ROTATION VARIMAX /METHOD=CORRELATION.
Resources	Processor Time	00:00:00.03
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Communalities

	Initial	Extraction
Noticeable Ad 2	1.000	.794
After feelings about tobacco, Ad 2	1.000	.780
After on campus tobacco, Ad 2	1.000	.745
After use product often, Ad 2	1.000	.594
After use in social, Ad 2	1.000	.861
After advocate, Ad 2	1.000	.814
After healthy lifestyle, Ad 2	1.000	.814

Extraction Method: Principal Component Analysis.

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.379	33.981	33.981	2.379	33.981	33.981
2	1.911	27.306	61.286	1.911	27.306	61.286
3	1.112	15.892	77.178	1.112	15.892	77.178
4	.659	9.417	86.595			
5	.354	5.059	91.654			
6	.331	4.728	96.382			
7	.253	3.618	100.000			

Total Variance Explained

	Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %
1	2.311	33.012	33.012
2	1.889	26.990	60.002
3	1.202	17.176	77.178
4			
5			
6			
7			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component		
	1	2	3
Noticeable Ad 2	-.414	.435	.659
After feelings about tobacco, Ad 2	.823	.136	-.289
After on campus tobacco, Ad 2	.765	.367	-.161
After use product often, Ad 2	.629	.404	.190
After use in social, Ad 2	.628	-.001	.683
After advocate, Ad 2	-.258	.828	-.249
After healthy lifestyle, Ad 2	-.297	.849	-.068

Extraction Method: Principal Component Analysis.

a. 3 components extracted.

Rotated Component Matrix[a]

	Component		
	1	2	3
Noticeable Ad 2	-.192	.323	.808
After feelings about tobacco, Ad 2	.801	-.073	-.364
After on campus tobacco, Ad 2	.839	.112	-.171
After use product often, Ad 2	.742	.083	.193
After use in social, Ad 2	.611	-.429	.551
After advocate, Ad 2	.060	.900	.030
After healthy lifestyle, Ad 2	.040	.876	.213

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 16 iterations.

Component Transformation Matrix

Component	1	2	3
1	.926	-.344	-.155
2	.374	.886	.273
3	.043	-.311	.949

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

```
RELIABILITY
  /VARIABLES=Q5 Q7 Q8 Q14 Q15 Q16 Q17
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA
  /SUMMARY=TOTAL.
```

Reliability

Notes

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	Matrix Input	
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the procedure.
Syntax		RELIABILITY /VARIABLES=Q5 Q7 Q8 Q14 Q15 Q16 Q17 /SCALE('ALL VARIABLES') ALL /MODEL=ALPHA /SUMMARY=TOTAL.
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02

[DataSet1] C:\Users\kfarra6\AppData\Local\Temp\Temp1_MC_3020_Experiment_1.zip\MC_3020_Experiment_1.sav

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	94	89.5
	Excluded[a]	11	10.5
	Total	105	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.532	7

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Noticeable Ad 2	17.66	34.313	.092	.575
After feelings about tobacco, Ad 2	18.51	35.672	.206	.514
After on campus tobacco, Ad 2	18.79	31.782	.404	.445
After use product often, Ad 2	19.20	30.378	.402	.436
After use in social, Ad 2	18.99	34.075	.173	.530
After advocate, Ad 2	17.56	31.496	.304	.476
After healthy lifestyle, Ad 2	17.07	29.747	.332	.462

```
 COMPUTE HealthCareCombo=Q5 + Q7 + Q8 + Q14 + Q15 + Q16 + Q17 + Q35 + Q39 + Q45 + Q47 + Q51.
EXECUTE.
COMPUTE OurAdsCombo=Q34 + Q37 + Q40 + Q43 + Q38 + Q44 + Q46 + Q49 + Q52 + Q59 + Q60 + Q61 + Q62 + Q50 +
EXECUTE.
T-TEST GROUPS=OurAdsCombo(1 2)
  /MISSING=ANALYSIS
  /VARIABLES=HealthCareCombo
  /CRITERIA=CI(.95).


 T-TEST PAIRS=HealthCareCombo WITH OurAdsCombo (PAIRED)
  /CRITERIA=CI(.9500)
  /MISSING=ANALYSIS.
```

T-Test

Notes

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	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	105
Missing Value Handling	Definition of Missing	User defined missing values are treated as missing.
	Cases Used	Statistics for each analysis are based on the cases with no missing or out-of-range data for any variable in the analysis.
Syntax		T-TEST PAIRS=HealthCareCombo WITH OurAdsCombo (PAIRED) /CRITERIA=CI(.9500) /MISSING=ANALYSIS.
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.02

[DataSet1] C:\Users\kfarra6\AppData\Local\Temp\Temp1_MC_3020_Experiment_1.zip\MC_3020_Experiment_1.sav

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	HealthCareCombo	35.1379	87	10.30260	1.10455
	OurAdsCombo	49.6667	87	11.60961	1.24468

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	HealthCareCombo & OurAdsCombo	87	.768	.000

Paired Samples Test

		Paired Differences			
		Mean	Std. Deviation	Std. Error Mean	95% Confidence ... Lower
Pair 1	HealthCareCombo - OurAdsCombo	-14.52874	7.55882	.81039	-16.13974

Paired Samples Test

		Paired ...			
		95% Confidence ...			
		Upper	t	df	Sig. (2-tailed)
Pair 1	HealthCareCombo - OurAdsCombo	-12.91773	-17.928	86	.000

```
GET
  FILE='C:\Users\lverre4\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\W329HDV7\K
DATASET NAME DataSet1 WINDOW=FRONT.
RELIABILITY
  /VARIABLES=Q5 Q7 Q14 Q34 Q40 Q44 Q35 Q39 Q45 Q59 Q60 Q62
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA
  /SUMMARY=TOTAL.
```

Reliability

Notes

Output Created		04-DEC-2013 10:12:23
Comments		
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	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	105
	Matrix Input	C:\Users\lverre4\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\W329HDV7\KitKat Experiment Results Part2.spv.sav
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the procedure.
Syntax		RELIABILITY /VARIABLES=Q5 Q7 Q14 Q34 Q40 Q44 Q35 Q39 Q45 Q59 Q60 Q62 /SCALE('ALL VARIABLES') ALL /MODEL=ALPHA /SUMMARY=TOTAL.
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.00

```
[DataSet1] C:\Users\lverre4\AppData\Local\Microsoft\Windows\Temporary Intern
et Files\Content.IE5\W329HDV7\KitKat Experiment Results Part2.spv.sav
```

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	89	84.8
	Excluded[a]	16	15.2
	Total	105	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.550	12

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Noticeable HCAd 2	33.34	66.794	.290	.510
After feelings about tobacco, HCAd 2	34.16	75.043	.178	.538
After use product often, HCAd 2	34.83	70.710	.252	.522
Noticeable OA 1.	31.55	75.728	.049	.571
After on campus, OA 1	34.10	70.524	.156	.549
After use often, OA 1	33.57	73.725	.062	.575
Noticeable HCAD 5.	33.09	68.605	.214	.532
After feelings about tobacco, HCAD 5.	34.98	69.659	.371	.500
After use often, HCAD 5	34.71	63.073	.531	.453
Noticeable, OA 2	31.51	75.571	.084	.559
After feelings about tobacco, OA 2.	35.35	73.616	.306	.519
After use often, OA 2	35.20	69.572	.378	.499

```
GGRAPH
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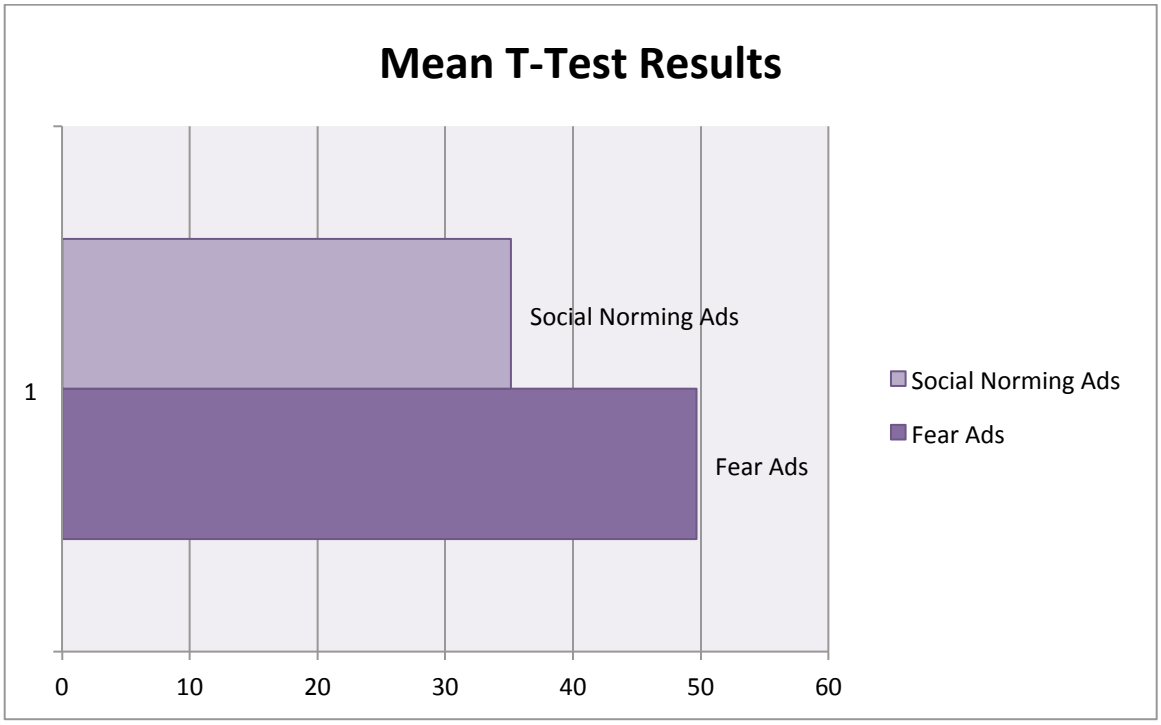
   MISSING=LISTWISE REPORTMISSING=NO
 /GRAPHSPEC SOURCE=VIZTEMPLATE(NAME="Bar of Counts"[LOCATION=LOCAL]
   MAPPING( "categories"="HealthCareCombo"[DATASET="graphdataset"] "Summary"="count"))
   VIZSTYLESHEET="Traditional"[LOCATION=LOCAL]
   LABEL='BAR OF COUNTS: HealthCareCombo'
   DEFAULTTEMPLATE=NO.
```

GGraph

Notes

Output Created		04-DEC-2013 10:17:53
Comments		
Input	Data	C:\Users\lverre4\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\W329HDV7\KitKat Experiment Results Part2.spv.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	105
Syntax		GGRAPH /GRAPHDATASET NAME="graphdataset" VARIABLES=HealthCareCombo [LEVEL=ordinal] MISSING=LISTWISE REPORTMISSING=NO /GRAPHSPEC SOURCE=VIZTEMPLATE(NAME="Bar of Counts"[LOCATION=LOCAL] MAPPING("categories"="HealthCareCombo"[DATASET="graphdataset"] "Summary"="count")) VIZSTYLESHEET="Traditional" [LOCATION=LOCAL] LABEL='BAR OF COUNTS: HealthCareCombo' DEFAULTTEMPLATE=NO.
Resources	Processor Time	00:00:01.01
	Elapsed Time	00:00:01.03

[DataSet1] C:\Users\lverre4\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\W329HDV7\KitKat Experiment Results Part2.spv.sav


Mean T-Test Results
Social Norming Ads
Fear Ads
1
0
10
20
30
40
50
60
Social Norming Ads
Fear Ads