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The Differential Effects Of Peer Influence And Advertisement On Healthy Food Choices

Lindsey M. Gordon

Fort Hays State University, lmgordon@mail.fhsu.edu

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THE DIFFERENTIAL EFFECTS OF PEER INFLUENCE AND
ADVERTISEMENT ON HEALTHY FOOD CHOICES

being

A Thesis Presented to the Graduate Faculty
of the Fort Hays State University in
Partial Fulfillment of the Requirements for
the Degree of Master of Science

by

Lindsey M. Gordon

B.S., Fort Hays State University

Date _____

Approved _____
Major Professor

Approved _____
Chair, Graduate Council

ABSTRACT

The current study examined the differential effects of advertisement and peer pressure on the consumer choices of young adults.. Data were gathered from Fort Hays State University undergraduate participants enrolled in psychology courses. Participants were assigned to one of four experimental groups being comprised of two separate two-level independent variables. One independent variable, advertisement-type, appeared on a computer screen while the participants were completing a simple, yet arbitrary task. The next independent variable, peer choice, was manipulated by having confederates in the same experimental session choose either healthy or unhealthy foods prior to the participants as a reward for completing the arbitrary task. Thus, some deception was involved in this experiment, because the participants were led to believe the arbitrary task they completed on the computer was the focus of the study, rather than their food choice. Participants' food choices were shown to be heavily influenced by peer pressure (i.e., by the food choices of the confederates in the same experimental session). However, no effect of advertisement type was present. Also, the effect of peer choice on participant food choice was not moderated by advertisements for a particular type of food, suggesting a fairly stable peer influence effect. Limitations and future research are also discussed.

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TABLE OF CONTENTS

	Page
ABSTRACT	i
ACKNOWLEDGMENTS	ii
TABLE OF CONTENTS.....	iii
LIST OF TABLES	v
LIST OF FIGURES	vi
LIST OF APPENDIXES	vii
INTRODUCTION.....	1
<i>The Influence of Peer Pressure</i>	2
<i>The Influence of Advertisements</i>	6
<i>Consumer Culture Theory</i>	8
<i>Socio-Cognitive Theory</i>	9
<i>Theories of Choice: Orientation Reaction</i>	10
How CCT, SCT, and Orientation Reaction Work Together	12
Formation of Dietary Habits.....	12
Individual Characteristics of Associated with Food Consumption	13
<i>Gender Differences</i>	14
<i>College Students and Dietary Habits</i>	14
<i>Stress and Food Intake</i>	15

	Page
SUMMARY	15
Rationale for the Study.....	16
How to Promote Healthy Habits from Potential Findings of the Study.....	17
Possible Outcomes in the Present Study	18
METHOD	19
Participants	19
Materials	19
<i>Recruiting Script</i>	19
<i>Confederates</i>	20
<i>Demographic Questionnaire</i>	20
Procedure.....	21
Results	26
Discussion.....	29
Limitations.....	31
Future Studies	32
REFERENCES.....	34

LIST OF TABLES

Table		Page
1	Logistic Regression Results for Predictors of Healthy or Unhealthy Food Choice	27

LIST OF FIGURES

Figure		Page
1	Assignment of Participants to Different Experimental Groups.....	21
2	Flowchart for Experimental Procedure.....	25
3	The Relationship between Confederate Choice and Advertisement Type on Healthy Food Choice	28

LIST OF APPENDIXES

Appendix	Page
A Recruiting Script	40
B Consent Form	41
C Demographic Questionnaire	43
D Debriefing Form	45
E IRB Approval Letter	46
F Advertisements Utilized in the Study	47

INTRODUCTION

Today, most individuals understand the importance and benefits of maintaining a healthy diet. However, in a society obsessed with image and body weight, it is important to understand the rationale behind individuals' food choices. Studies of food choice tend to concentrate on the purposeful and rational obstructions to healthy eating (e.g. healthy food does not taste good, and is expensive), but ignore food's emotional and representational dimensions (e.g., eating a specific type of food will make an individual more popular). One notable exception to this trend was a study conducted by Stead, McDermott, MacKintosh and Adamson (2011). In their study, Stead et al. wanted to see if individuals would assign certain peers different food items based on reputation (popular or unpopular). The results of their qualitative focus group study lend support to the idea that food choice is influenced by more than the simple taste and nutritional value of the food item; there are social factors involved in food choice.

Although research by Stead et al. (2011) suggests people assign social meanings to food items, it ignores the effects of advertisement branding of certain food items as valuable, and others as less valuable. Additionally, these two variables—peer pressure and advertisement—have not been examined in the same experimentally controlled study. Thus, there appears to be a gap in the existing body of literature. Specifically, previous studies have focused on how advertisements (McGinnis, 2006) and peer pressure (Brechtwald & Prinstien, 2011) separately affect food choices, but an insufficient amount of research has been completed combining the effects of advertisement and peer pressure in a single study. Also, the scientific literature on food choice has focused on the

behaviors of children and adolescents, but few studies have been conducted with young adults.

The Influence of Peer Pressure

Peer influence can be defined as pressure to think or act along certain guidelines set by peers (Brechwald & Prinstien, 2011), and this form of social pressure has empirically been demonstrated to have power in many social contexts, with food choice in a social situation being one possible example. Consumption of food has been suggested as an important form of socialization, and thus may be a possible scenario in which peer pressure may play a role. In fact, peers have been shown to have an impact on early adolescents' levels of unhealthy food consumption (Salvy, Coelho, Kieffer, & Epstien, 2007). However, the support for peer pressure's effects on food choice in young adults has not been well explored, and the few studies conducted have not found consistent results (McGinnis, 2006).

It has been suggested young individuals attach social meanings to food, and judge peers based on their food choices (Salvy et al., 2007). Also, according to Salvy et al., health and nutrition are low-priority concerns of low priority for adolescents, compared to older individuals (Salvy et al., 2007). Adolescents seem to be drawn towards eating behaviors that are not compatible with a healthy diet (Rozin, Riklis, & Margolis, 2004). Although most of the peer-influence research has been performed with adolescent participants, studies have suggested young adults maintain dietary habits from childhood to adulthood, (Salvy et al.); so, since the behavior remains consistent from adolescence to young adulthood—the behavior of food choice—it is plausible that the process and

variables of importance in the decision will also remain the same. So, young adults may behave just as adolescents and also attach meanings to different types of food.

Past research has shown that consuming a food considered socially inferior can lead the consumer to be criticized by peers (Stead et al., 2011). This finding would suggest individuals are more likely to pick unhealthy foods, which are more socially acceptable, in order to avoid being negatively judged by their peers (Stead et al., 2011). Collectively, past research also suggests adolescents' behaviors and attitudes are similar to those of their friends, but most research fails to examine if those behaviors and attitudes remain through young adulthood (Brechwald & Prinstein, 2011). There are multiple theories revolving around peer influence on food choice, including homophily (Brechwald & Prinstein, 2011).

Homophily is the tendency of individuals to bond and associate with others who act similarly. Homophily theories suggest similarities between youth tendencies to associate with peers who have similar attitudes and behaviors. Over time, youth and their peers' behaviors and attitudes become increasingly similar (Brechwald & Prinstein, 2011). Homophily theories examine individuals based on the way they act, but these theories have not looked into how common *food consumption* bonds people together.

Previous research has shown that in first-time interactions, individuals are likely to conform to choices made by their peers (Papyrina, 2012). An adolescents amount of consumption and food choices tends to be highly correlated with peer consumption; the individuals consumption—in quantity and type— will tend to match their peer's consumption (Wouters, Larsen, Kremers, Dagnelie & Greenen, 2010). Whether this trend continues with young adults, as opposed to children, is an empirical question. It is

certainly plausible that the increases in independence, which occur during adolescence and young adulthood, may broaden their food choices, and make them less susceptible to peer influence.

Food preferences have also been suggested to form through the process of role modeling. There is limited research on whether adolescents model their eating habits from their peers or whether the mere presence of a peer impacts an adolescent's food consumption (Salvy et al., 2007). However, possible major social influences on food preferences of *children* are the food preferences of individuals who are older, individuals who children admire, and those of media role models (Rozin et al., 2004). The modeling of socially acceptable and unacceptable food choices may, in turn, encourage or discourage specific food types or even food brands. Certain brands of food may be considered socially acceptable, while other food brands may be viewed as damaging to one's social position and appearance (Salvy et al., 2009).

Previous studies have also looked at how children and adults adjust their level of eating as a function of their familiarity with their eating partner. Results suggest that both overweight and healthy weight individuals eating with a familiar peer consumed significantly more compared to participants eating in the vicinity of an unfamiliar peer (Romero, Epstein, & Salvy, 2009; Salvy et al., 2009). These findings suggest individuals who view their friends consuming unhealthy food may use it as a permission-giver for the individual to increase their consumption, with the goal to match their peers. After observing peers consume unhealthy foods, an individual is more likely to consume unhealthy foods as well. When an individual observes peers consuming unhealthy foods, the individual is more comfortable consuming the same unhealthy food choice (Salvy,

Elmo, Nitecki, Kluczynski, & Roemmich, 2011). For adolescents, some of these unhealthy food choices may be taking place through the consumption of unhealthy *snack* foods of close friends; research suggests friendship and unhealthy snack food consumption are linked (Feunekes, Graaf, Meyboom & Staveren, 1998). Collectively, it can be suggested young adults will also model their food choices from their peers.

As adolescents become more self-sufficient, it has been suggested they spend a considerable amount of time with their peers (Salvy et al., 2007). Previous studies have shown that youth substitute food for social activities with an unknown peer. However, when interacting with a friend was the alternative choice, participants did not substitute food for social interactions. This finding suggests that when youth have access to friends, they find spending time with friends more reinforcing than food (Salvy, Nitecki, & Epstein, 2009). The presence of others made the consumption of food for normal-weight children easier, but overweight children suppressed their appetites around peers. Children classified as overweight limit their intake of food in front of peers to convey a good impression, to avoid the stigmas that are given to overweight people, and to increase social approval (Salvy et al., 2007). This research suggests participants will match the food choice of the confederate. It can be suggested participants who want to make a good first impression on their peer will pick the healthy food choice to increase social approval of the confederate.

Peer pressure affects consumer choices in a multitude of ways. Individuals monitor their food consumption in front of peers and will make healthy or unhealthy choices depending on the self-image they want to portray to their peers. Some individuals will match the type and amount of food they consume to their peers, while others will

limit their intake to portray healthy eating habits to individuals they have just met. In conclusions, a large body of literature has supported the idea that peer-pressure may influence eating habits in either a healthy or unhealthy direction. Studies have also shown that other external influences may direct food choice. These external influences may come in the form of internet or television advertisements.

The Influence of Advertisements

The majority of past research examining the effects of advertising food choice has focused on television-based advertisements. The literature on the effectiveness of television advertisements tends to indicate that, the more a food is advertised, the more that food is consumed (French, Story, & Jeffery, 2001). In addition, consuming food while watching television may lead to over eating because the type and amount of food consumed is not being monitored (French, Story, & Jeffery, 2001). Based on these results, it is plausible to also suggest that individuals may fail to monitor the type and amount of food being consumed when working or playing on a computer; both tasks-television viewing and computer interaction-reduce the limited capacity of attention, thus reducing the amount of attention which could be focused on the food being consumed at the particular moment.

Specific types of foods are marketed to the youth in ways that are dramatically different compared to 40 years ago, and marketing today has been suggested to strongly influence youth's food preferences and choices (McGinnis, 2006). Consumer socialization refers to the process utilized by youth use to acquire skills, knowledge, and attitudes related to their functioning as consumers in the marketplace. Today there is an array of marketing venues for companies to reach youth through advertisement.

Adolescents are exposed to food marketing regularly from a wide range of media- (e.g., television commercials, internet advertisements), and the cumulative exposure to food marketing is linked to adolescent's food selections and eating behaviors (Scully et al., 2012). Not only does consumer socialization and food marketing have an influence on an individual's food choices, but the formation of food preferences plays a key role in consumers' food choices.

Preference for specific foods forms at a young age (McGinnis, 2006), and this preference may in part be due to advertisements. Unfortunately, unhealthy food is promoted substantially more than healthy food in these advertisements, with about half of the commercials that run during children's television programs consist of unhealthy food (Pettigrew, Roberts, Chapman, Quester, & Miller, 2012). Also, previous research has suggested a noteworthy relationship between increased exposure to digital food marketing and reported ingestion of unhealthy foods (Scully et al., 2012). It has been suggested that children are a major target of advertising since they can be used to gain access to larger markets.

Children have independent spending power, and significant influence over household purchasing, which is why it is suggested children are a main target of advertisements (Cairns, Angus, & Hastings, 2009). The amount of food advertisements increased three fold during children's programming (Kelly et al., 2010). Unhealthy foods are advertised far more than any other type of food during children's programming. Marketing attempts to create positive ideas associated with their food product to influence children consumers to purchase that product. Food companies use a variety of marketing objectives to target children consumers (Cairns et al., 2009). Food products are

advertised with promotional characters and offers of toys or other goods. These qualities of advertisements are used to attract a children's attention and trigger a request or to the parents to buy an advertised product (Kelly et al., 2010).

Food companies use a variety of marketing objectives to target children consumers (Cairns et al., 2009). Food products are advertised with promotional characters and offers of toys or other goods are used to attract children's attention and trigger a request or buy an advertised product (Kelly et al., 2010). The food industry relies on multiple advertising strategies to promote products. One main strategy the food industry utilizes is called branding. The main goal of branding is to create product recognition and lifelong customers. Research has shown associating a brand with a positive emotion is key to product success (Culp, Bell, & Cassady, 2010). Consumer Culture Theory's main focus is on brand symbolism and how branding affects consumer choices (McGinnis, 2006).

Consumer Culture Theory

Consumer Culture Theory (CCT) is a group of academic viewpoints that reports the compelling relationship between the marketplace, consumer actions, and the cultural meanings of those actions. CCT looks at the assorted distribution of meanings and the array of overlapping cultural groupings that occur within the larger social historic frame of maturation and market capitalism. Consumer culture represents a social organization in which the relationship between an individuals culture and social resources, and between an individuals meaning of life and the representative and material resources on which individuals depend (Arnould & Thompson, 2005).

CCT views consumption as being continually shaped by ongoing interactions within a socio-cultural context, and is concerned with the factors that shape the experiences and identities of consumers. CCT looks at the relationship between lived culture and social resources, and between lifestyle and the symbolism of material resources which is mediated through markets (Nairn, Griffin, & Wicks, 2008). CCT's main focus is on brand symbolism. For example, some brands are associated with "coolness." However, brand symbolism does not take into account the complexity of social dynamics influencing food choice, with one example being the influence of a peer group (French et al., 2001). CCT research usually eliminates peer pressure from studies since peer pressure is seen as an extraneous variable (Nairn et al., 2008).

Socio-Cognitive Theory

Socio-Cognitive Theory (SCT; Bandura, 1986) highlights the importance of personal, socio-environmental, behavioral factors and the relationship between these factors in influencing an individual's behaviors. In other words, change is dependent on the complex interplay of environmental (food availability), personal (self-efficacy), and behavioral (skills) factors (Kelly et al., 2013). The interaction between these factors has been termed reciprocal determinism which means each factor may affect or be affected by the others. A central determining factor of behavior in SCT is self-efficacy (Fitzgerald, Heary, Kelly, Nixon, & Shevlin, 2013).

Self-efficacy can be defined as the measure of belief and individual has in their own ability to complete tasks or reach goals. Dietary self-efficacy refers to an individual's ability to make healthy food choices, regardless of potential barriers like peer pressure, or limited healthy food options when going out for dinner. High dietary self-

efficacy in adolescents has been suggested to be associated with lower consumption of unhealthy foods and a preference for healthy foods like fruit and vegetables (Lubans et al., 2012).

Increased self-efficacy beliefs have been shown to be related to healthy food intake, and lower self-efficacy beliefs have been shown to be related to unhealthy food intake. For males, a significant relationship has been shown between self-efficacy and peer support for healthy eating that may be linked to male's confidence to consume healthier foods compared to females. Male peer groups encourage and support one another to consume healthy choices with greater confidence especially in social settings or compared to peers (Fitzgerald et al., 2013).

Socio-Cognitive Theory states self-regulation is an individual's ability to set specific and attainable goals by employing effective strategies for attaining the goal. SCT suggests self-regulation is an individual's capability to set precise and achievable goals by using effective strategies to reach that goal. And individual's behavior is moderated through self-efficacy expectations. There are three steps to self-regulation; self-observation, self-judgment, and self-reaction (Schnoll & Zimmerman, 2001).

Theories of Choice: Orientation Reaction

The process of choosing healthy food over unhealthy food, or vice versa, is a psychological choice. Thus, the psychological literature on choice behavior is relevant to the current research proposal. When individuals are asked to make a choice, there is a pattern of reactions that can be perceived: reluctance, assessment of options, and indecision, this is when orientation reaction occurs There are two different types of choice. One type occurs when a person is faced with two different options, and the other

type of choice occurs when there is an obstruction in a person's premeditated path, and how that individual goes about conquering that obstruction (Hansen, 1976). Majority of the time, circumstances that require a choice to be made are characterized by more than one appropriate alternative. In these situations of more than one alternative, three aspects can be identified. The three aspects are: two or more alternative choices need to be available, those different choices need to create a certain amount of conflict, and cognitive process need to occur that are focused on reducing conflict (Hansen, 1976).

This proposed study will address these three aspects first by offering the participants three unhealthy food choices, and three healthy food choices. The choices create an amount of conflict since participants will be easily able to recognize the major difference between healthy and unhealthy foods. Finally, the current research will be focusing on the cognitive processes utilized to reduce the conflict. For example, will participants focus more on the peer pressure aspect and choose the same food choice as the confederate, or will the participants pick the food that was advertised during the study since they will already be thinking about that particular food? When an individual is exposed to information, conflict, and uncertainty, a cognitive process occurs that causes the individual to be faced with an unspecified amount of uncertainty which is called conflict situations (Hansen, 1976). In the present study, the conflict situation will be both peer pressure influence and the influence of the advertisement.

Compiled behaviors that are acquired through learning, and are performed with no cognitive conflict, and are carried out with little cognitive control are called organized behavior sequences (Hansen, 1976). This means an individual's formation of choice is not the only factor that affects food choice or preference. Dietary habits that have been

practiced for years will have an impact as well. This also means if a participant regularly maintained a healthy diet before participating in the proposed experiment, the influence of advertisements and peer pressure may not affect their food choice.

How CCT, SCT, and Orientation Reaction Work Together.

Socio-cognitive theory (SCT) is the idea that people do not learn new behaviors solely by trying them and either succeeding or failing, but rather by replicating the actions of others. This is precisely the situation during which consumer culture theory (CCT) becomes relevant. CCT emphasizes the notion that a person will use material goods to attain happiness and satisfaction. CCT also posits individuals' desires to keep up with peers by purchasing goods and merchandise to improve quality of life. Finally, orientation reaction is the process individuals go through when deciding what their choice is.

To summarize, people will learn what the popular choices are by modeling other individuals (SCT). This leads to individuals desire to keep up with their peers and either match their purchases or compete with them for better products, or more of the same product (CCT). When individuals are deciding if they want to match peer purchases or spend more is when orientation reaction takes place.

Formation of Dietary Habits

Early childhood lays the foundation for food preferences. During the developmental age of infancy, feeding is crucial to the child's relationship with their parents and for the infant to develop a sense of security and trust. During middle childhood, individuals develop social skills, and increase their independence from their parents and focus more on developing friendships. Children's eating behaviors reflect

these developmental changes, and become more influenced by outside sources. During adolescence individuals become more independent and eat away from home. Concern over body weight and appearance, the need for peer acceptance, and busy schedules all can impact eating patterns and food choices (McGinnis, 2006). Findings by others suggest that eating habits are already formed by mid adolescence (Lien, Jacobs, & Klepp, 2002). Healthy food consumption decreases between the ages of 14 and 21. It has been suggested that consumption patterns remain consistent into adulthood. Both males and females report decreased amounts of healthy food and increase the consumption of unhealthy drinks as they age, whereas the consumption of unhealthy food remained unchanged (Lien et al., 2002). Once dietary habits are formed, these habits affect genders quite differently.

Individual Characteristics Associated with Food Consumption

Previous research has shown individuals with a higher Body Mass Index (BMI) or who are limiting food intake in attempt to lose weight are hypersensitive to food cues within their current environment. (Nijs, Muris, Euser, & Franken, 2010), (Hollitt, Kemps, Tiggemann, Smeets, & Mills, 2010) This suggests individuals who are limiting their food intake will be more sensitive to the advertisements of food, but may choose the healthy food option if they are trying to limit food intake, and have high dietary self-efficacy. Franken, Rosso, and Honk's (2003) study suggested alcoholic individuals craving for alcohol increases after viewing and advertisement of an alcoholic beverage). It may be suggested from this study that individuals who are limiting their food intake may be more vulnerable to advertisements of unhealthy food crave the advertised food more, and be more inclined to pick the food that was advertised.

Gender differences. For girls, nutrition quality declines between the ages of five and nine years old, which has been shown to continue into adolescence. The age, gender, and race/ethnicity of children and adolescents affect beverage consumption patterns (McGinnis, 2006). Findings have suggested the direct intake of food after viewing an advertisement is different for men and women. Women had a higher intake of unhealthy food, and men showed a lower food intake after viewing a commercial. These findings contrast what has been shown in young children, which showed food commercials affected the food intake of boys more strongly compared to girls (Anschutz, Engels, Zwaluw, & Strien, 2011). Females have been shown to display self-presentational motives by increasing healthy food intake and decreasing intake of unhealthy food in the presence of peers. Teenage girls consume more healthy foods in front of peers to show peers their healthy eating habits (Salvy, Elmo, Nitecki, Kluczynski, & Roemmich, 2011). Women increased their food intake when exposed to food commercials, whereas men limited their food intake when exposed to food commercials. This suggests women are more susceptible to consuming larger quantities of food when exposed to food advertisements (Anschutz et al., 2011). Gender differences may have an impact on consumer's food choices along with individual characteristics like attempts to lose weight or higher body weight.

College students and dietary habits. College is the time when many young adults begin making their own decisions about dietary choices. College students have greater access to unhealthy foods compared to healthy foods (eg., vending machines, fast food, eateries in student unions). This can cause a problem when negative eating habits adopted early in life tend to persist throughout adulthood (Gerend, 2009). For example,

stress can cause some individuals to eat a higher calorie, poorer diet while others will restrict their intake.

Stress and food intake. Stress affects individuals eating habits in different ways, some people consume increase their food consumption while others will decrease their food consumption. Research has suggested stress causes changes in food choice away from healthy foods to less healthy foods. Stress leads to increased consumption in some individuals, but also shifts some individuals' food choices from healthy to unhealthy. Females tend to increase food consumptions more compared to males when stressed. A larger percentage of people who reported increasing their food intake when stressed were dieting during the time of increased unhealthy consumption of foods they normally avoided (Zellner et al, 2006).

Stress is not going to be controlled for in my experiment. Since my participants are going to be undergraduate students, majority of them may be stressed. It will be interesting to see if participants' food choices will match what previous research has found for food consumption of individuals who are stressed.

Summary

Previous research has focused on the effects of peer pressure and advertisements independently, and focuses how both affect the dietary choices of children and adolescents. Limited studies have focused on young adults' dietary habits, and how peer influence and advertisements affect those choices. Studies suggest individuals conform to their peer's food choices as to not be singled out for ridicule. Advertisements have been suggested to impact food choices by visually stimulating viewers, and over promoting the

taste and popularity (ex: eat this candy bar and you will be popular.) of the product. The findings from the study can be used as a tool to help find the best way to promote healthy diets to young adults, especially college students.

Rationale for the Study

Past research into the psychological forces driving food choice have been limited by both the methodological constraints inherent with self-report surveys, and by studying either peer pressure or advertising effects rather than both. Also, with the proposed experimental approach of the present study will allow for a clearer causal link to be made between any of the independent variables of food choice, as compared to using self-report surveys of food choice. Another problem with self-report surveys—demand characteristics—will be minimized in the present study by using both the experimental design, and by using deception.

This study will potentially fill the gap in research pertaining to young adult's food choices, and how peer pressure and advertisements affect those food choices. This study will also help to understand which variable (peer pressure or advertisements) affect young adult food choices more. Because college students fit into the young adult age range, this research is beneficial because it can be used to generate the best possible way to promote a healthy diet to college students. Past research has failed to understand the effectiveness of interventions to promote healthy eating habits among college students (Kelly et al, 2013). College students are known to have unhealthy diets due to stress, lack of funds to purchase healthy foods, lack of nutritional knowledge, and less active lifestyles (Zellner, 2006). The dietary habits of young adults are concerning because lack

of proper nutrition is associated with a number of negative health outcomes, including weight gain, heart disease, high blood pressure, diabetes, and a variety of other health problems (Holm-Denoma, 2008).

How to Promote Healthy Habits from Potential Findings of the Study

Research has shown Point of Purchase (POP) messages have been shown to have a significant positive impact on young adults' consumption of healthy foods when placed at the entrance of the dining hall and above the healthy foods that the POP message is portraying (Buscher, Martin & Crocker, 2001). If findings from my study indicate young adults respond better to advertisements, portraying bright, flashy messages of healthy food items offered on campus is one way to promote healthy diets on campus.

Some college students prioritize social relationships over maintaining a healthy diet, and report concern about peers viewing them poorly for engaging in healthy behaviors, like reviewing food labels before purchasing the product (Diskell, Schake, & Detter, 2008; Strong, Parks, Anderson, & Winett, 2008). Regardless of the strong effect social support can have, our understanding of the power of peer influence on activity levels and eating habits comes mainly from the literature involving children and adolescents. Findings show peer influence is a powerful motivator for children and adolescents to maintain a healthy diet and lifestyle. Gruber's research shows that individuals, who have a peer group that motivates healthy food choices and exercise, are more successful in maintaining a healthy diet (Gruber, 2008). If the findings of the study show peer influence is a better motivator for food choice, the implication of more

on-campus groups can be used to successfully promote healthy diets and lifestyles on campus.

Possible Outcomes of the Current Study

It is hypothesized peer pressure will have an effect on young adults food choices. It is also hypothesized advertisements will have an effect on young adult's food choices. The last hypothesis is there will be an interaction between peer pressure and advertisements.

Participants in the current study watched and modeled a confederate's food choice. The participant then decided if they were going to match the confederate's food choice, or make their own food choice using orientation reaction. If the confederate made a healthy food choice, the participant might pick the unhealthy food choice since unhealthy foods are viewed as being more socially acceptable, and the participant would be trying to portray being better than the confederate.

There are multiple possible outcomes of study that can be linked to previous research. If a main effect for peer choice occurs, peer pressure can be suggested to have an effect on food choices of young adults. This would be consistent with much research on peer influence (e.g., Kelly et al., 2013; Arnould & Thompson, 2005). If a main effect for advertisement occurs, the results of the proposed study would support previous literature for the effectiveness of advertisements, specifically if an advertisement promotes a food product in a way that the viewer believes eating that food product will make their peers view the individual as "cool", which is a main idea behind CCT (Arnould & Thompson, 2005). If a main affect for both peer pressure and advertisement

occurs, the proposed study would support the idea individuals learn which food choice is popular by modeling other individuals (SCT), which leads to an increase in the desire of individuals to keep up with their peers and either match their food choice or compete with them for more of the same product (CCT) (Kelly et al., 2013; Arnould & Thompson, 2005). Orientation reaction would take place when the individual is deciding if they want to match the food choice of their peer, or try to compete with their peer (Hansen, 1976).

Method

Participants

Participants were 99 Fort Hays State University undergraduate students between the ages of 18 and 65 enrolled in psychology courses. There were 21 males in the study and 78 females. The participants' demographics were consistent with traditional undergraduate students from a Midwestern university (Age: $M = 19.18$, $SD = 1.58$). 94 percent of the participants identified as being Caucasian, 5 percent of participants identified as Hispanic or Latino, and 1 percent of participants identified as African American. No other ethnicities were represented in this study.

Students who participated received extra credit or course credit for their psychology course. In each class, equitable alternative options were provided to students in order to not coerce individuals into participating in this particular study.

Materials

Recruiting script. Participants were recruited by first contacting professors of psychology courses. Potential participants were then emailed a recruiting script

(Appendix A) to gauge their interest in volunteering for the study. After reading the recruiting script, participants were directed to an online form to sign up for the study.

Confederates. Two confederates, one male and one female, were asked to help with the peer-pressure manipulation of the study. Both confederates were aware that participants in the study would be rating the confederates' attractiveness and how physically fit they appeared (see section on Demographics Questionnaire). Confederate behavior was designed in order to appear to be participating in the study with the actual participants; confederates were acting as if they were undergraduates also participating in the study for course credit. However, confederates were instructed prior to an experimental session to choose a specific food item upon completion of a research

Demographics questionnaire. In addition to age, sex, and ethnicity, the demographics questionnaire (Appendix B) asked participants to rate how attractive and physically fit they thought the confederate was during the experiment. This was administered to statistically remove any effects of food choice simply due to being attracted to the confederate. The demographics questionnaire also asked the participants to rate how hungry they were on a scale of 1 to 5 (5 being extremely hungry and 1 being not hungry at all). Participants were also asked if they had any food allergies, and if they were currently diagnosed with a medical condition which may dictate their food choice during the experiment. It was considered that hunger level, food allergies, and medical conditions could all impact the participants' food choice, irrespective of the experimental manipulations of peer-influence and advertisement type. For example, if a participant was allergic to a specific food, like chocolate, they would probably avoid a possible unhealthy

food choice since it could potentially cause them harm, even if they had internal motives to adhere to peer-influence or advertisement type.

Procedure

Once participants signed up, but prior to their arrival for the study, the researcher randomly assigned participants to one of the four groups (Figure 1).

		Peer Pressure	
		Healthy	Unhealthy
Advertisements	Healthy	Group One	Group Two
	Unhealthy	Group Three	Group Four

Figure 1. Assignment of participants to different experimental groups

All manipulations were administered through MediaLab software on five computers in the Martin Allen computer lab. Depending on the experimental group, participants viewed and experienced a different combination of advertisements (Appendix F) and peer-influence. The definition of a healthy food, for this experiment is a food that is low in fat, saturated fat, and contains limited amounts of cholesterol and sodium. An unhealthy food in this experiment is defined as containing high levels of calories from sugar or fat with little protein, vitamins, and minerals (Gruber, 2008). Participants assigned to group one were shown advertisements of healthy foods, and the confederate picked a healthy food. Participants in group two were exposed to

advertisements of healthy food, and the confederate picked an unhealthy food.

Participants in group three were exposed to advertisements of unhealthy food, and the confederate picked a healthy food. Finally, participants in group four were exposed to advertisements of unhealthy food, and the confederate picked an unhealthy food.

Computers were set to administer different advertisement types prior to a participant arriving for the study. These treatments were randomly assigned to participants prior to the study. After receiving a brief description of the study, participants were asked for their consent, and were asked to sign the informed consent document (see Appendix B). Next, participants began the experimental procedure by selecting OK on the computer program and following directions through the assigned tasks.

Participant and confederate (always the same sex) were instructed to search the top 10 songs of 2014 on the website www.Amazon.com as part of the same “study on consumer choice”, although the true purpose of the experiment was withheld from participants until the end of the experiment. While the participant and confederate were completing the arbitrary consumer choice task, advertisements for unhealthy or healthy foods were programmed to abruptly appear on the screen similar to “pop up” ads. The particular advertisement a participant viewed depended on their randomly assigned group (see Figure 1).

Each of the food advertisements was displayed on the screen for 10 seconds, and then the screen automatically returned back to the webpage the participant was currently on (i.e., www.Amazon.com).

At the end of the consumer choice task, participants were offered a food reward for their participation in the study. In every experimental session, the confederate was instructed to finish their Amazon.com search before the actual participant, so that the food reward would be first offered to the confederate, and second to the participant. Both the confederate and the participant were offered to choose one item among three unhealthy and three healthy food items. The same types of foods were offered each time the experiment was conducted, the healthy food options consisted of apples, oranges, and celery. The unhealthy food options were Skittles, M&M's, and Reese's Peanut Butter Cups. Offering three different choices of each type of food was envisioned to help ensure that the participant would have some food options they found desirable out of both the healthy and unhealthy food categories.

The confederate next picked the food item they were told to choose before the beginning of the experiment, depending on the specific experimental group to which the participant was randomly assigned (Figure 1). The food choice the participant chose was recorded while the participant completed the demographic questionnaire (Appendix B) in MediaLab as the last step of the consumer choice experiment.

After participants finished the demographics questionnaire, the researcher fully debriefed each participant regarding the true nature of the experiment. Specifically, participants were notified that the other participant was an accomplice (confederate) in the study. Participants were also informed not disclose any information, pertaining to the experiment, to fellow classmates who may participate. This was done in order to limit the possibility of response bias or demand characteristics, and to prevent inaccurate data.

Great care was taken to ensure participants were not distressed as a result of being deceived during the project. Once participants were fully debriefed and given a debriefing form (Appendix D), they were thanked and the experimental procedure concluded. For a visual aid to help understand the flow of the experiment, please refer to Figure 2.

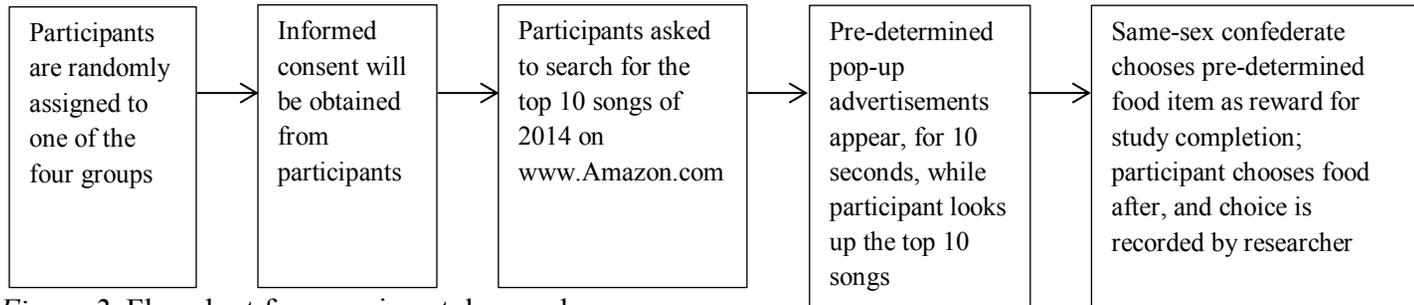


Figure 2. Flowchart for experimental procedure

Results

The data collected in the form of binary outcomes (healthy choice or unhealthy choice), with the healthy choice option coded as “1” in the data. The appropriate statistical analysis for the data was a logistic regression with two predictors (peer choice and advertisement type) and one criterion (presence of healthy choice). The data collected will be used to test the utility of the various theoretical perspectives posited in prior research. Specifically, data from the proposed study will be analyzed to see if peer pressure and advertisements have an effect on food choice, and if peer pressure and advertisements interact to produce differential effects on young adult food choices.

Data were analyzed using a four-step hierarchical logistic regression with perceived confederate attractiveness, perceived confederate fitness, participant hunger level, and whether the participant was on a diet entered at the first step; gender entered at the second step; type of advertisement and food choice of confederate were entered at the third step; and the interaction of type of advertisement and food choice of confederate was entered at the fourth step. These variables were entered as predictors of healthy or unhealthy food choice. The results of this analysis are reported in Table 3.

None of the variables entered at step one were unique predictors of food choice, and the overall model was not statistically significant at step one, $\chi^2(N = 99) = 4.34, p = .36, R^2_{NS} = .06$. The overall model at step two was also not a statistically significant improvement past step one, $\Delta\chi^2(N = 99) = 0.66, p = .42$, and still offered only a marginal level of predictive power ($R^2_{NS} = .07$). Gender was entered in this step (the variable was coded as male=1, female=2) and was determined not to be a unique predictor of healthy

or unhealthy food choice, Wald $\chi^2(N = 99) = 0.65, p = .42$. This finding suggests there is no gender difference in healthy versus unhealthy food choice in the current study.

The model at step three was a statistically significant improvement past step two, $\Delta\chi^2(N = 99) = 6.14, p = .05$, and showed an increased level of predictive power ($R^2_{NS} = .14$). The variables entered at step three were type of advertisement and confederate food choice. In addition to the model being significant it was determined that confederate choice was a unique predictor of healthy or unhealthy food choice, Wald $\chi^2(N = 99) = 5.47, p = .02$, showing that participants were more likely to follow the food choice of the confederate and adhere to peer pressure. This finding supports the hypothesis of peer pressure may have an effect on participant's food choice. Advertisement, however, was not a unique predictor of food choice at step three, Wald $\chi^2(N = 99) = 0.29, p = .59$, showing that the advertisement scheme presented in this study was not effective at altering food choices.

Table 1

Logistic regression results for predictors of healthy or unhealthy food choice.

<i>Step</i>	<i>Predictors</i>	<i>Wald χ^2</i>	<i>B</i>	<i>R²_{NS}</i>
1	Fitness	3.66	-.55	.06
	Attractiveness	0.71	.18	
	Diet	<0.01	<.01	
	Hunger	0.50	.13	
2	Gender	0.65	-.42	.07
3	Ad. Type	0.29	-.23	.14*
	Confed. Choice	5.47	-1.08*	
4	Ad. Type*Conf. Choice	3.76	-1.80	.19*

Note. Statistically significant effects at the level of $p < .05$ are denoted by an asterisk.

The model at step four offered a statistically significant improvement from step three when the interaction of ad type and confederate choice was entered, $\Delta\chi^2(N = 99) = 3.91, p = .05$. However, the interaction was not quite a unique predictor of healthy or unhealthy food choice in the model at step four. Because of the marginal effect at this step, interpretation of the interaction will proceed.

Examination of the interaction between advertisement type and confederate choice shows an interesting relationship (see Figure 3). Specifically, it appears that advertisement type moderates the relationship between peer choice and participant healthy food choice, with the effect of peer choice only being present when unhealthy advertisements are presented. When healthy advertisements are presented, all participants choose the healthy food at about the same frequency, irrespective of peer pressure.

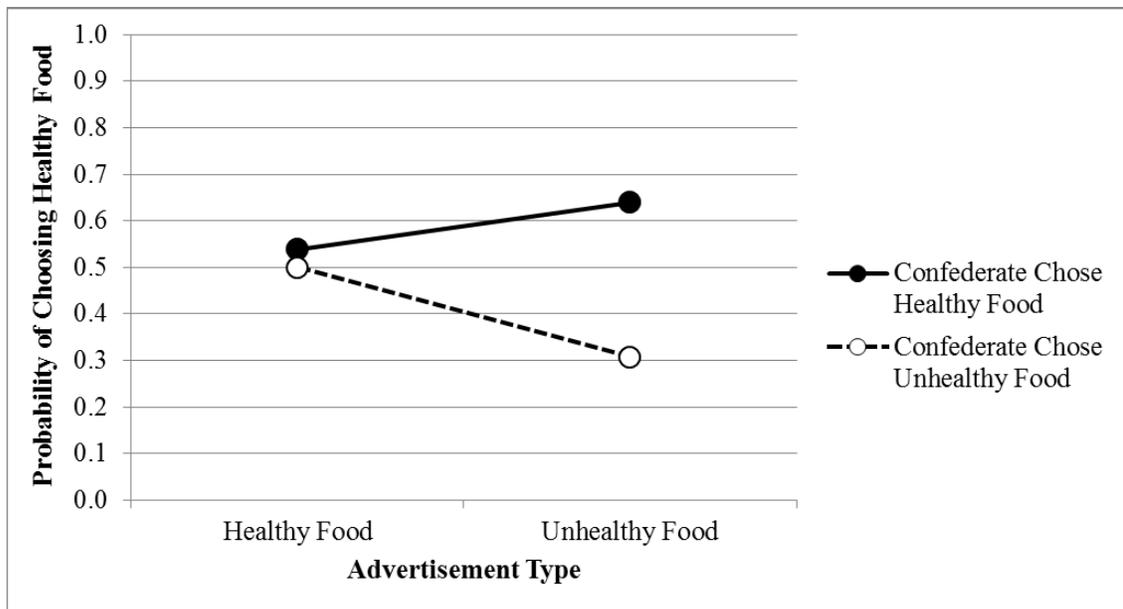


Figure 3. The relationship between confederate choice and advertisement type on healthy food choice.

Discussion

This research supports findings from previous research suggesting that in first-time interactions, individuals are likely to conform to choices made by their peers (Papyrina, 2012). The trend suggested by previous research that adolescents amount of consumption and food choices tends to be highly correlated with peer consumption; the individuals consumption—in quantity and type— will tend to match their peer's consumption which continues into young adulthood. (Wouters, Larsen, Kremers, Dagnelie & Greenen, 2010) The findings of this study suggest increases in independence during young adulthood do not have a significant effect on the role that peer pressure plays in first time interactions with peers.

Findings support the theories of SCT and CCT, because participants replicated the food choice of their peer. According to SCT, individuals learn behaviors by replicating others. The data from this study shows when an advertisements for unhealthy food were viewed by the participant, the participant's food choice matched the choice of the confederate. If the participant viewed unhealthy advertisements, and the confederate chose a healthy food, the participant was more likely to choose the healthy food option as well and if the confederate chose the unhealthy food option, participants also chose an unhealthy food option.

Both of these scenarios support previous research on SCT and CCT, suggesting peer influence and modeling had an impact on participant's food choice. The findings support the idea that college students prioritize social relationships over maintaining a healthy diet, and are concerned with how peers judge them based on their food choices.

The findings show peer influence, as a motivator for food choice, continues into young adulthood.

CCT emphasizes the notion that a person will use material goods to attain happiness and individual's desires to keep up with peers by making similar food choices. During the decision making process, orientation reaction is occurring. The participant is processing the food options and attempting to come to a decision/indecision, which are the final steps of orientation reaction. According to the results from this study, individuals tend to conform to peers food choice instead of making an independent choice, but only after viewing unhealthy food advertisements.

The findings of the study can be used to promote healthier food choices to college students. Peer influence is a better motivator for food choice, so implicating more on-campus groups that promote a healthier diet and support to individuals can be utilized to successfully promote healthy diets and lifestyle on campus. For example, in university cafeteria settings, on-campus groups, that promote healthy diets, can have members model to individuals what the healthy options are by choosing the healthy foods present in the cafeteria. Due to the findings of the study, individuals entering the cafeteria will be more likely to pick the healthy food options after viewing peers chose healthier options.

Participants who chose an unhealthy food after viewing unhealthy advertisements, and observing the confederate chose an unhealthy food support previous research suggesting the power of peer influence and advertisement on food choice. The results found in this study suggest individuals respond better to advertisements of unhealthy foods since unhealthy foods are advertised substantially more in the outside environment compared to healthy foods (Pettigrew, Roberts, Chapman, Quester, & Miller, 2012).

Confederate food choice did not have an effect on participant's food choice when a healthy food advertisement was viewed. This could have occurred because priming participants with healthy food advertisements makes participants more immune to peer influence. Viewing the advertisements for healthy food could have made the participants more conscious of the different type of food offered to them. Previous research suggests portraying bright, flashy messages have a significant impact on the amount the advertised food is consumed (Buscher, Martin & Crocker, 2001). Future studies can present different types of healthy food advertisements, ranging from basic to flashy, to participants and compare the effect the different advertisements have on healthy food choices.

Limitations

There were multiple limitations to this study, which will need to be addressed for further research. Some of the issues that occurred during data collection can be controlled by throwing the data out. For instance, some of the participants came in to participate as a group, and would see the confederate before participating in the study. Also, when participants were informed they could only participate one at a time, the sight of the confederate confused them, and led the participants to be suspicious of what was going on. To help prevent this, participants were informed students were waiting in two rooms, and there would be one participant pulled from each room to make it seem like there were two groups of participants in two different rooms.

Another issue that occurred was some of the participants declined to pick a food choice altogether. If this occurred, participants would be encouraged to pick a food, and

were not required to keep the food of their choice. If the participant still declined, the participant number was recorded and the data was thrown out.

A more important issue that arose during data collection was some of the participants may not have been primed by the ads because they were writing song titles instead of looking at the computer screen. To fix this issue for future studies, the advertisements should appear for a longer period of time to ensure participants will view all three of the advertisements.

Future Studies

It would be beneficial to compare the findings of this study with others focusing on peers that the participants are acquainted with. Previous research suggests individuals who are exposed to new peers will conform to their peer and make the same food choice. If the participant is familiar with the confederate, how will this increased level of comfort around the peer affect the participant's food choice?

Future studies can also focus more on gender differences. Gender differences have been noted in previous studies. For example, a male confederate with female participant and vice versa. This will give insight into how participants being exposed to different genders giving off the same form of peer pressure will affect participant's food choice.

Participant's level of nutritional knowledge can also be a focal point of future studies. Studying individuals with differing levels of nutritional knowledge could have an impact on the results of the study. For example, individuals with a higher level of nutritional knowledge may choose the healthy food product, regardless of advertisement type and peer influence, since those individuals are more knowledgeable about the

nutritional benefits of the healthy food options. Measuring participant's current level of nutritional knowledge may have an effect on the results of the current study.

It would also be beneficial to look at how different platforms for advertisements (e.g. television, radio, internet, and cell phone apps.). The current study utilized the internet, so exposure to the same advertisements for the same amount of time for different entertainment platforms may impact consumers' food choices differently. For example, would the results differ if the study was conducted with the advertisements appearing on phone applications compared to the results of the current study? It would be beneficial to run a similar experiment utilizing multiple platforms for advertisements, and compare the results. The findings from those studies could be utilized to better promote advertisements of foods, and identify which platform is the most effective for promoting foods to consumers.

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APPENDIX A
Recruiting Script

Hello, my name is Lindsey Gordon; I am a graduate student in the clinical psychology program at Fort Hays State University. I am interested in recruiting participants to be involved in a study over consumer choices. The task will require approximately 30 to 45 minutes time to complete. The study will be conducted in the computer lab of Martin Allen Hall. A sheet with available time slots will be distributed and individuals who are willing to participate may select a time to sign up. Does anyone have any questions?

APPENDIX B
Consent Form

CONSENT TO PARTICIPATE IN RESEARCH

Department of Psychology, Fort Hays State University

Study title: Consumer Selection of Young Adults

Name of Researcher: Lindsey Gordon

Contact Information: lmgordon@mail.fhsu.edu

Name of Faculty Supervisor & Contact Information, if student research: Dr. Trey Hill
wthill@fhsu.edu

You are being asked to participate in a research study. It is your choice whether or not to participate. Your decision whether or not to participate will have no effect on your academic standing to which you are otherwise entitled, Please ask questions if there is anything you do not understand.

What is the purpose of this study?

The purpose of the study is to determine young adult's consumer preferences.

What does this study involve?

Participants will be asked to complete a simple task on the computers in Martin Allen Hall computer lab. Participants will complete the study individually, and all the information will be shared in aggregate. If you decide to participate in this research study, you will be asked to sign this consent form after you have had all your questions answered and understand what will happen to you. The length of time of your participation in this study is 30 to 45 minutes. Approximately 150 participants will be in this study.

Are there any benefits from participating in this study ?

There may be benefits to you should you decide to participate in this study. Your participation will help us learn more about young adult's consumer choices.

Will you be paid or receive anything to participate in this study ?

No.

What about the costs of this study ?

There are no costs for participating in this study other than the time you will spend completing the task on the computer.

What are the risks involved with being enrolled in this study ?

It is unlikely that participation in this project will result in harm to participants. If you feel distressed or become upset by participating you can contact the Kelly Center at (785)-628-4401.

How will your privacy be protected?

Sign-up sheet will be kept in a manila envelope and locked in a file cabinet in the thesis chair's office. The consent forms will be collected and stored in a similar way, but will be kept separate from the sign-up sheet. Both will be kept for a minimum of five years and then will be shredded. No names or identifying marks will be collected on demographic forms, these forms will be stored in a file cabinet in the thesis chair's office, and will be shredded after five years.

Efforts will be made to protect the identities of the participants and the confidentiality of the research data used in this study, such as:

Any information collected will be de-identified data, participants will take part in the study one at a time. All information collected, consent, sign-up sheet, record form, and demographic page will be locked in file cabinets, and encryption of research data is a technical safeguard. Data will be kept filed and locked away for five years. Once the five years is up, the data and information will be destroyed. The information collected for this study will be used only for the purposes of conducting this study. What we find from this study may be presented at meetings or published in papers but your name will not ever be used in these presentations or papers.

Other important items you should know:

- **Withdrawal from the study:** You may choose to stop your participation in this study at any time. Your decision to stop your participation will have no effect on your academic standing.
- **Funding:** There is no outside funding for this research project.

CONSENT

I have read the above information about **Consumer Selection of Young Adults** and have been given an opportunity to ask questions. By signing this I agree to participate in this study and I have been given a copy of this signed consent document for my own records. I understand that I can change my mind and withdraw my consent at any time. By signing this consent form I understand that I am not giving up any legal rights. I am 18 years or older.

Participant's Signature and Date

APPENDIX C
Demographics Questionnaire

1. Gender (Circle one)

Male Female Other

2. Age (in years) _____

3. Please circle one of the following to indicate your primary ethnic identity

- A. African American
- B. White Caucasian –Non Hispanic
- C. Chinese
- D. Asian American
- E. Hispanic or Latino
- F. Middle Eastern
- G. American Indian, Alaskan Native
- H. Other _____
- I. Decline to answer

4. Do you currently have food allergies? (Circle one)

Yes No Don't Know

5. How hungry were you when you came in to participate today? (Circle one)

1 being not hungry at all, and 5 being extremely hungry

1 2 3 4 5

6. Have you been diagnosed with a medical condition that would affect your eating habits? (Circle one)

Yes No Not Sure

7. How attractive do think the other participant in the study is? (Circle one)

1 is not attractive at all, and 5 is extremely attractive

1 2 3 4 5

8. How physically fit do you think the other participant in the study is? (Circle one)

1 is not physically fit at all, and 5 is extremely fit

1 2 3 4 5

9. Are you currently on a diet? (Circle one)

Yes No Not Sure

10. What is your stress level currently?

1 is not stressed at all, and 5 is extremely stressed

1 2 3 4 5

11. How knowledgeable are you of a healthy life style?

1 is not knowledgeable at all, and 5 is extremely knowledgeable

1 2 3 4 5

APPENDIX D
Debriefing Form

Thank you for participating as a research participant in the present study concerning consumer choices of young adults. You were informed the purpose of the study was to investigate your internet navigational skills, but this is not accurate. **You were deceived as to the nature of this study. The true purpose of this experiment was to track food choices based on the type of advertisement and peer pressure you were exposed to.**

Feel free to ask any questions at this time.

Since deception was involved in this study, it is important that you are thoroughly debriefed about the nature of this experiment. The purpose of this study is to see how advertisements of healthy and unhealthy food, and peer pressure effect young adult's food choices. The task of looking up the top ten songs of 2014 listed on www. Amazon.com is not relevant to what is being studied in this experiment. Again, feel free to ask any questions.

All identifying information will be protected. Your information will only be used in aggregate form, meaning that in no way will your identifying information be attached to your scores; everything you have done in this experiment will remain confidential.

If you know of any friends or acquaintances that are eligible to participate in this study, we request that you not discuss it with them until after they have had the opportunity to participate. Prior knowledge of questions asked during the study can invalidate the results. We greatly appreciate your cooperation. If you are interested in the results of the experiment, feel free to contact me using the email provided below.

In the event that you feel psychologically distressed by participation in this study, we encourage you contact the FHSU Kelly Center at (785) 628-4401 or the office of Scholarship and Sponsored Projects at (785)-625-4349. If you have any questions regarding this study, please feel free to contact the researcher, Lindsey Gordon, at lmgordon@mail.fhsu.edu, 785-259-5969 or Dr. Trey Hill at wthill@fhsu.edu, 785-628-4404.

Sincerely,

Lindsey Gordon
lmgordon@mail.fhsu.edu

APPENDIX E
IRB Approval Letter



**FORT HAYS STATE
UNIVERSITY**

Forward thinking. World ready.

OFFICE OF SCHOLARSHIP AND SPONSORED PROJECTS

DATE: October 1, 2014

TO: Lindsey Gordon
FROM: Fort Hays State University IRB

STUDY TITLE: [650028-2] The Differential Effects of Peer Pressure and Advertisement on Healthy Food Choices

IRB REFERENCE #: 15-004
SUBMISSION TYPE: Revision

ACTION: APPROVED

APPROVAL DATE: October 1, 2014
EXPIRATION DATE: September 18, 2015
REVIEW TYPE: Administrative Review

Thank you for your submission of Revision materials for this research study. Fort Hays State University IRB has APPROVED your submission. This approval is based on an appropriate risk/benefit ratio and a study design wherein the risks have been minimized. All research must be conducted in accordance with this approved submission.

This submission has received Administrative Review based on the applicable federal regulation.

Please remember that informed consent is a process beginning with a description of the study and insurance of participant understanding followed by a signed consent form unless documentation of consent has been waived by the IRB. Informed consent must continue throughout the study via a dialogue between the researcher and research participant. Federal regulations require each participant receive a copy of the signed consent document. The IRB-approved consent document must be used.

Please note that any revision to previously approved materials must be approved by this office prior to initiation. Please use the appropriate revision forms for this procedure.

All SERIOUS and UNEXPECTED adverse events must be reported to this office. Please use the appropriate adverse event forms for this procedure. All FDA and sponsor reporting requirements should also be followed.

Please report all NON-COMPLIANCE issues or COMPLAINTS regarding this study to this office.

Please note that all research records must be retained for a minimum of three years.

Based on the risks, this project requires Continuing Review by this office on an annual basis. Please use the appropriate renewal forms for this procedure.

APPENDIX F
Advertisements Utilized for the Study

Healthy Food:



Unhealthy Food:

