

# THESIS

## MESSAGE EFFECTIVENESS IN THE LOCAL FOOD CONTEXT

Submitted by

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## ABSTRACT

### MESSAGE EFFECTIVENESS IN THE LOCAL FOOD CONTEXT

The local food movement has grown in popularity and might be beneficial both to individuals and communities. Most messaging strategies around local foods incorporate environmental or social elements, however a dominant branding strategy does not currently exist. We uncovered three common factors that were found in several studies on motivators to purchase local foods. These motivating factors were food quality, healthfulness, and support of local farmers. We sought to identify if message frames around these motivations created positive attitudes and behavioral intent to purchase local foods. To test this relationship 408 study participants were recruited from general education courses at Colorado State University. The theories included in this study were framing theory and the theory of planned behavior, which includes attitude, subjective norms, perceived behavioral control, and behavioral intent.

Personality traits have been shown to moderate the effectiveness of message frames as well as attitudes toward local food. Therefore, personality traits were also taken into consideration as potentially moderating the relationship between frame type and attitudes/behavioral intent to purchase local foods. The factor-five model was used to evaluate personality types. The factor-five model includes the personality types neuroticism, extraversion, agreeableness, openness, and conscientiousness.

Our results show that each frame type did not significantly influence participants' attitudes, subjective norms, perceived behavioral control, or behavioral intent to purchase local foods. This was the case both before and after personality traits were taken into consideration as moderating the relationship between frame type and behavioral intent. However, our main

analysis did reveal that the personality trait openness is significantly related to each element of the theory of planned behavior model. Additional exploratory analysis shows that females are more likely to have favorable attitudes toward local food than males. Exploratory analysis also revealed that current and past production of food is related to a greater perceived behavioral control to purchase local foods.

We suggest that the study might yield more meaningful results if pre-existing attitudes and elaboration on behalf of participants had been considered. We recommend a replication of this study with message strength and quality taken into greater consideration. In two separate areas of study, we also recommend further research on the relationship between attitudes toward local food and degrees of separation from food production as well as a possible link between the personality trait openness and local food sales.

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## CHAPTER 1. INTRODUCTION

The purpose of this study is to examine the interaction effects of differently framed messages and personality traits on attitudes toward and intent to purchase local food. This study's focus is on message effectiveness in the local food context. To fully understand this study's context, the chapter begins with discussion on the impact of the local food movement. Next, several definitions of local foods are presented. Finally, past research on proven motivators to purchase locally grown foods are offered as well as a synopsis of the evolution in messaging strategies over time. Past research indicates that individual differences, such as personality traits, might influence the message receptivity among the target audience and their decision to buy local food. Framing theory and the theory of planned behavior are briefly introduced to provide additional support for the research questions.

### **Impact of Local Foods**

In 2014, over 8,000 farmers markets were listed in the United States Department of Agriculture's (USDA) national Farmers Market Directory (United States Department of Agriculture, 2014). According to the USDA (2014), this is a 3.6% increase from 2012. Even more impressive, research from the USDA's Economic Research Service (ERS) indicates that direct-to-consumers sales "increased from 116, 733 to 144,530 between 2002 and 2012" (Low et al., 2015, p. 1). Scholars suggest that farmers markets and local food sales can have a positive influence on small to medium sized businesses and the local community (Martinez, 2010).

Proponents of local food distribution channels cite the potential for building strong communities, both economically and socially (Lyson & Green, 1999). The importance of keeping food expenditures in local hands can be especially significant in rural areas (Lyson &

Green). For example, Schneider and Francis (2005) suggest that local foods can help alleviate pressure on rural areas from urban expansion and can be particularly beneficial to local economies (Schneider and Francis). Brown (2003) further concludes that local food markets could increase farm income.

Other proponents of local food systems cite the importance of environmental sustainability. Halweil (2002) is a proponent of local foods because of an inherently shorter supply chain. Producers who sell locally are also more likely to diversify their crops, which could also be of ecological benefit (Halweil). However, these environmental arguments should be taken with a word of caution. Weber and Matthew's (2008) research on greenhouse gasses in the food production process suggests that transportation is actually the least significant influence in greenhouse gas emissions. This finding negates much of the environmental benefits that have been tied to a short supply chain from farm to plate as described by Halweil (2002). Instead, Weber and Mathew conclude the production of red meat has the most substantial negative impact on emissions. Based on this finding, Weber and Matthew suggest a shift in diet, rather than a shift to local foods for positive environmental outcomes.

Although the environmental literature on the local food movement is conflicted in terms of the relationship to public health, local foods could aid in providing nutritional benefits for underserved communities. In an effort to increase fruit and vegetable intake among low-income communities, farmers markets now accept SNAP funds (Wetherill & Gray, 2015). Similarly, food deserts exist around the country as areas with limited access to fresh food. According to Adams and Salois (2010) enhancing local food markets could alleviate food deserts and provide greater food security. This is consistent with Halweil's (2002) suggestion that strengthened local food markets could provide health benefits and alleviate nutritionally underserved communities

in both rural and urban areas. One might conclude that a better understanding of the effectiveness of local food messaging techniques could have several community-level benefits.

In addition to these macro-level benefits, individual benefits have also been described in local food research. Those who shop more frequently at farmers markets are more likely to increase daily fruit and vegetable intake (Freedman, Choi, Hurley, Anadu, & Hébert, 2013). This finding is consistent with Jilcott Pitts and colleagues' (2013) results showing that women who are of reproductive age are more likely to consume fruit and vegetables if they also frequently shop at farmers markets. Concentrated efforts on better local food messaging could be advantageous in promoting the consumption of nutrient dense foods.

### **What is meant by Local Foods?**

Local food does not have a concrete definition (Cranfield, Henson, & Blandon, 2012; Martinez, 2010). According to the 2008 Farm Act, food can be considered “local” if it is less than 400 miles from its origin or within the same state that it was produced (Martinez, 2010). Although this definition seems finite, qualitative consumer analysis on the meaning of “local food” yields a broad array of definitions from food produced in a neighbor’s yard to food produced within the United States (Zepeda & Leviten-Reid, 2004). Brown (2003) found that consumers in southeast Missouri define local food as a regional concept that does not necessarily correspond to state boundaries. This would indicate that consumers define local in terms of distance traveled, which is consistent with Zepeda & Leviten-Reid’s (2004) findings that local food might be defined as food produced within the same state or surrounding states. However, the ambiguity of a local food definition goes beyond distance from production to consumption. Zepeda and Leviten-Reid’s (2004) qualitative research also revealed that consumers even define “local food” in terms of benefits to individual health, the environment, and local farmers.

Perhaps “local foods” can be more discretely defined by where local food producers exist on the food production continuum. Research from UW-Madison Center for Integrated Agricultural Systems describes food distribution as a tier system. According to Bower, Doetch, and Stevenson (2010), the food distribution system lies on a continuum between completely local and highly globalized. In reality, this continuum is not entirely mutually exclusive, but their tier-based system is useful for conceptualizing the complexities of food distribution. Bower and colleagues developed the following Tiers of the food system:

“Tier 0 - Personal Production of Food  
Tier 1 - Direct Producer to Consumer  
Tier 2 – Strategic Partners in Supply Chain Relationships  
Tier 3 – Large Volume Aggregation and Distribution  
Tier 4 - Global, Anonymous Aggregation and Distribution”  
(Bower et al., 2010, p.1)

### **Proven Motivators to Purchase Locally Grown Food**

To better develop effective messaging strategies in the local food context, a review of proven purchase motivators is necessary. Highlighting proven purchase motivators in local food messaging might invoke a stronger intent to purchase locally grown food. This literature is scattered across disciplinary journals and no summary currently exists; therefore, details about where each study was conducted, when and how many consumers participated, methods, and conclusions are synthesized so we can begin to conceptualize the types of information that should be included in messages to enhance persuasion. The studies are summarized in Table 1.

Early research on motivators related to purchase intent of local foods took place in the late 1990s. In an effort to identify factors associated with farmers market patronage, Kezis, Gwebu, Peavey, and Cheng (1998) conducted a study in Orono, Maine. Surveys were distributed at the farmers market between the months of July and October of 1995. The study consisted of 239 total subjects, with 178 participants responding on questionnaire items related to purchase

intent. Questions on the survey sought to identify demographic characteristics of local food consumers, patronage trends, consumer attitudes, and consumer purchasing patterns (Kezis et al., 1998). Results showed motivators for shopping at the farmers market, in order of importance, include product quality, supporting local farmers, a friendly atmosphere, health & food safety concerns, convenience, price, variety, customer service, and consistency (Kezis et al.).

A study prepared for the Food Processing Center, Institute of Agricultural and Natural Resources at the University of Nebraska – Lincoln (2001) assessed consumer associations with local food. Additionally, this study also evaluated perceptions of organic food, all-natural food, and meat products. The study analyzed responses from 500 participants total across a 4-state region, including Nebraska, Iowa, Missouri, and Wisconsin. To ensure validity, subjects were recruited using systematic random sampling. Of interest to the present study were survey questionnaire items that related to local foods. Various food-related attributes were measured on a 10-point semantic differential scale ranging in levels of importance. Results indicate that all of the attributes listed on the survey had a mean level of importance above 6.0 (Food Processing Center, 2001). Of focal interest for this study is the order of attribute importance. From most important to least important, the order of attributes is as follows: Taste, quality, nutritious & healthy, price, supports local farmer, locally grown/produced, environmentally friendly, made by small local company, product is state grown, all-natural food, local store brand/label, and organic (Food Processing Center).

Similarly, Schneider and Francis (2005) conducted a mail survey in Washington County, Nebraska to assess the viability of expanding local food markets in that area. Both consumers and local farmers were surveyed independently, with consumer responses being of interest to this study. Consumers were recruited using stratified random sampling methods, and were exposed to



a questionnaire design similar to that of the Food Processing Center's (2001) survey. Total consumer responses were  $n = 207$ . Once again, consumers were asked to rank food-related attributes on a 10-point semantic differential scale with 10 being the most important and 0 being the least important. Quality, taste, nutritional benefits, price, and environmental stewardship were the most commonly reported motivators. For a full list of results, please refer to Table 1.

Also in the Midwest, Brown (2003) conducted a study in southeast Missouri to better understand food buying behavior and local food preferences. Data was collected using a mail survey and simple random sampling methods. Total subject participation was  $n = 544$ . With a smaller subsample of  $n = 478$ , Brown uncovered several motivating factors behind local food purchases. Please note, Brown's sample of interest to this study was reduced from  $n = 544$  to  $n = 478$  because only 478 participants answered the questions that dealt solely with local foods and motivations to purchase local foods. Of these responses, the most frequent motivators to purchase local food included quality and selection of produce, first-time patronage at a farmers market, and a desire to purchase locally grown food. Results further indicate that those who are a part of an environmental group are willing to pay more for local foods than those who are not a member of an environmental group. However, there was not a significant correlation between seeking out local foods and environmentalism (Brown).

Toler, Briggeman, Lusk, and Adams (2009) assessed other types of food attributes as they relate to equality concerns for local and non-local farmers. Toler and colleagues conducted a field experiment at two intercept locations, one farmers market and one grocery store in Edmund, Oklahoma. The total number respondents was  $n = 102$ , with an evenly distributed response rate between the two intercept locations. Toler et al. indicate that local food might be important to consumers for community-level reasons, in addition to individual level attributes

such as taste and quality. Respondents who indicated that they purchase local foods were asked about factors influencing their purchase intent. Pooled data from both intercepts shows underlying motivations to support the local community. Individual factors, such as food quality concerns, were also important to local food consumers (Toler et al.)

Nurse Rainbolt, Onozaka, and McFadden (2012) also discuss altruistic motivators as a critical component of local food purchases. Nurse Rainbolt et al. conducted a nationwide study assessing factors affecting consumer behavior. Total respondents were  $n > 1000$  that were recruited using stratified sampling, and surveys were administered through WebTV and online. A 4-point scale ranging from “not at all important” to “extremely important” measured various attitudes related to the importance of food-related attributes when selecting fresh produce (Nurse Rainbolt et al., 2012, p.389). Listed in order of importance, these attributes were farmers receiving a fair wage, locally grown, and organically grown (Nurse Rainbolt et al.). Findings here suggest that attributes beyond quality, taste, and health benefits are important to recognize.

Zepeda and Leviten-Reid (2004) took a more qualitative approach to uncover perceptions about local food. They conducted a focus-group in Madison, Wisconsin. Participants were divided into four groups, with two groups consisting of those who frequently purchase organic food and two groups consisting of those who do not purchase organic foods. Participants were recruited through several events and networking channels, including a food cooperative newsletter, a local food festival, a Slow Food convivium listserve, a home economics alumni association, and a Bible study group (Zepeda & Leviten-Reid). Trends within each focus group indicate that those who regularly purchase organic foods might also seek out local foods to support local farmers, promote environmental stewardship and sustainable land use, and because they believe it has health benefits (Zepeda & Leviten-Reid). Alternatively, conventional food

shoppers might purchase locally grown food for freshness and flavor concerns, because they wish to purchase long-lasting produce, and because they believe purchasing local food might forge personal relationships (Zepeda & Leviten-Reid).

The following table summarizes the results mentioned above on motivating factors associated with making local food purchases.

**Table 1. Summary of research examining reasons consumers choose or prefer local food**

Study	Methods	Participants/Region	Motivating Local Food Choice or Preference
Kezis et al. (1998)	Surveys were distributed at the farmers market. Survey was conducted during the months of July through October of 1995.	n=239 (n=178 for motivations section)  Location: Orono, Maine	Quality (72.5%) Support local farmers (59.6%) Friendly atmosphere (38.2%) Health & food safety (29.8%) Convenience (13.5%) Price (10.7%) Variety (8.4%) Service (5.0%) Consistency (2.2%)
Food Processing Center (2001)	Participants were recruited through a systematic random sample. Data collection consisted of a survey questions using a 10-point semantic differential.	n=500  Location: Nebraska, Iowa, Missouri, and Wisconsin.	Taste (mean: 9.2) Quality (mean: 8.78) Nutritious & Healthy (mean: 8.36) Price (mean: 7.93) Supports Local Farmer (mean: 7.06) Locally Grown/Produced (mean: 6.90) Environmentally Friendly (mean: 6.58) Made by Small Local Co (mean: 6.39) Product is State Grown (mean: 6.31) All-Natural Food (mean: 5.99) Local Store Brand/Label (mean: 5.67) Organic (mean: 4.20)
Brown (2003)	Mail surveys distributed using simple random sampling methods from commercially purchased mailing list.	n=544 (total) n=478 (local food questions)  Location: Southeast Missouri	Quality & selection (45%) Locally grown (18%) Price (6%) Direct contact with grower (5%) Buying for canning/freezing (3%) Atmosphere (2%) Never shopped at farmers market (21%)
Zepeda & Leviten-Reid (2004)	Focus group setting. Participants were broken up into four groups. Two groups consisted of those	Alternative Group 1: 3 males and 7 females between 26 and 76 years of age.	Conventional consumer attribute importance: Freshness

	who purchase organic food (alternative food shoppers) and two groups consisted of those who do not purchase organic food (conventional food shoppers).	<p>(Caucasian)</p> <p>Alternative Group 2: 3 males and 9 females between 22 and 47 years of age. (Caucasian)</p> <p>Conventional Group 1: 11 females between 21 and 79 years of age. (Caucasian)</p> <p>Conventional Group 2: 10 females between 26 and 60 years of age. (African-American)</p> <p>Location: Madison, WI</p>	<p>Flavor</p> <p>Long-Lasting Produce</p> <p>Personal Relationships</p> <p>Alternative consumer attribute importance: Support local farmers Sustainable Land Use Personal Health Concerns</p>
Schneider and Francis (2005)	Both consumers and farmers were independently surveyed using mail survey. Consumer respondents were recruited using stratified random sampling. Questionnaire items related to food purchase intent were measured using a 10-point semantic differential scale.	<p>n=207</p> <p>Location: Washington County, Nebraska</p>	<p>Quality (mean: 8.56)</p> <p>Taste (mean: 8.52)</p> <p>Nutritious &amp; Healthy (mean: 8.27)</p> <p>Price (mean: 8.15)</p> <p>Environmentally friendly (mean: 6.76)</p> <p>Support local family farm (mean: 6.07)</p> <p>Nebraska grown (mean: 5.73)</p> <p>Locally grown/produced (mean: 5.63)</p> <p>Made by a small local company (mean: 5.30)</p> <p>Local store brand of label (mean: 5.23)</p> <p>All-natural food (mean: 4.61)</p> <p>Organic (mean: 4.20)</p>
Toler et al. (2009)	Two field experiments took place, one in a grocery store and one at a farmers market. Researchers sought to identify consumer's willingness to pay for local and non-local products as well as their level of inequality aversion in supporting local farmers. Pooled data is of interest to the present study.	<p>n=102 total n=51 grocery store n=51 farmers market</p> <p>Location: Edmond, OK.</p>	<p>Higher Quality Food (50%)</p> <p>Support the Local Community (33%)</p> <p>To Promote more Equitable Food Production Distribution System (8%)</p> <p>Lower Food Prices (5%)</p> <p>Entertainment or Experience (5%)</p> <p>Other (0%)</p>
Nurse Rainbolt et al. (2012)	Data was collected across the United States using a stratified random sample. Subjects were sent a survey through WebTV or online. Questionnaire items relating to purchase intent were measured on a 4-point scale ranging in level of importance.	<p>n&gt;1000</p> <p>Location: Nation-wide</p>	<p>Farmers receive a fair wage (3.33)</p> <p>Locally grown (3.13)</p> <p>Organically grown (2.65)</p>

Environmental friendliness and sustainable production are central in the local food movement and are often used in local food marketing campaigns (Hinrichs & Allen, 2008; Lamine, 20015). However, our review of the literature shows that environmental sustainability does not seem to be an important motivating factor to purchase local foods (Brown, 2003; Kezis et al., 1998; Toler et al., 2009; Rainbolt & McFadden, 2012). Of the literature summarized, Schneider & Francis (2005) were the only researchers to find that environmental sustainability ranked in the top five motivating factors, and Brown (2003) indicated that a direct relationship between environmentalism and local food purchases does not seem to exist.

### **Local Food Messaging Strategies**

Local food campaigns have been described as operating on one of two underlying paradigms. The first is the sustainable development paradigm, which focuses on agriculture's interaction with the environment; the second is the relocalization paradigm which is more focused on the social aspects of the local food movement (Lamine, 2015). Although this is somewhat complex, these paradigms do seem to outline the marketing campaigns of most local food marketing strategies. According to Hinrichs and Allen (2008), the idea of local food grew from a sustainable production movement in the early 1990s. Since then strategic local food communication campaigns have focused on sustainability efforts and direct consumer demand (Hinrichs & Allen).

Most local food messages have similar characteristics to the 1999 "Be a Local Hero/Buy Locally Grown" campaign from the Community Involved in Sustaining Agriculture (CISA) organization out of western Massachusetts (Hinrichs & Allen, 2008). Concentrated efforts from FoodRoutes and CISA catalyzed similar local food campaigns cropping up around the U.S. (Hinrichs & Allen). CISA still promotes the "Be a Local Hero" slogan (Community Involved in

Sustaining Agriculture, n.d.). A brief assessment of CISA material suggests that messages relate to both economic and environmental health, coupled with community involvement (Community Involved in Sustaining Agriculture). Drawing from the sustainable development paradigm described by Lamine (2015), this type of messaging strategy operates through social aspects of the local food movement.

Federal local food campaign messages have similarly evolved. As of 2016, the USDA supports The Know Your Farmer, Know Your Food (KYF2) campaign. Their mission is centered on increasing community-based economic development, fostering healthy dietary eating patterns, expanding access to local food, and strengthening the connection between “food, agriculture, the community, and the environment” (United States Department of Agriculture, 2015). On the surface, USDA’s slogan, “Know Your Farmer, Know Your Food”, highlights the importance of community in local foods. However, additional text-based messaging seems to also highlight local food attributes related to environmental stewardship. In this manner the Know Your Farmer, Know Your Food campaign operates on social aspects as described by Lamine (2015), but also incorporates a sense of environmentalism.

In addition to federal promotions, branding programs for local foods exist in almost every region of the United States (Hughes & Boys, 2015). An example of a state branding program for local foods might be the label “Colorado Proud.” Local food labeling can have multi-dimensional influences on consumers. McFadden (2015) indicates that the label “Colorado Proud” is associated with environmental and community level factors, as well as sustainable agriculture and taste (McFadden, 2015, p. 4). This example exemplifies both elements of the sustainable development paradigm, as consumers seem to identify with a sense of

environmentalism and relocalization as well as social aspects related to local food. Clearly, labeling has become an important aspect of branding “local food.”

Additionally, retail food stores and food coops are capitalizing on the local food marketing potential. For example, Whole Foods touts the importance of local foods to support local farmers, preserve character, ensure crop diversity, and boost the local economy (Whole Foods Market, 2015). Likewise, the Oklahoma Food Coop structures itself after a triple bottom line which consists of social justice, environmental stewardship, and economic sustainability (Diamond, 2012).

These general themes are corroborated by Hinrichs and Allen (2005) whose comprehensive content analysis of websites devoted to local food shows that both mission statements and marketing frames are generally centered on economics or environmentalism (Hinrichs & Allen). Delind (2006) suggests that most local messages are based on health concerns or sustainable production practices, but warns that campaigns moving forward should place more emphasis on place and culture. Due to the nature of local food, one might presume that purchasing and consuming local food fosters a better connection with place. Other scholars fear that some local food branding programs might start to deteriorate in effectiveness as an overlap in campaigns develops between states or regions (Hughes & Boys, 2015).

### **Need for Study**

Previous scholarship indicates that locally grown food could have positive community and individual level benefits (Freedman et al., 2013; Lyson & Green, 1999). However without a dominant branding strategy, messages around local foods could start to deteriorate in effectiveness (Hughes & Boys, 2015). Scholars call for further research on message frames in the local food context (Gorham, Rumble, & Holt, 2015), and local food labels (Jeong & Lundy,

2015). Scholars also suggest that local food messaging become more place-based and culturally bound (Delind, 2006). Although sustainability and environmentalism are often used in local food messaging strategies (Hinriches & Allen, 2008; Lamine, 2015), our assessment of the literature on motivations to purchase local foods shows that quality (Brown, 2003; Food Processing Center, 2001; Kezis et al., 1998; Schneider & Francis, 2005; Toler et al., 2009), health (Food Processing Center, 2001; Kezis et al., 1998; Schneider & Francis, 2005; Zepeda & Leviten-Reid, 2004), and altruistic motivators (Food Processing Center, 2001; Kezis et al., 1998; Schneider & Francis, 2005; Zepeda & Leviten-Reid, 2004) are more important factors to consider. Given increasing interest in the area of local food systems, understanding the various interpretations of local food messages could prove to be vitally important for those involved in agricultural communications.

To fully assess message effectiveness, accounting for individual differences among the target audience is important. Personality traits have a moderating effect between motivation to purchase and attitudes about organic food (Chen, 2007). Additionally, research on message effects suggests that personality traits play a moderating role in the effectiveness of attribute framing (Gamliel, Zohar, & Kreiner, 2014). To fully explore message effectiveness in relation to food marketing, personality traits should be measured as a potential moderating variable. Additionally, Rentfrow, Gosling, and Potter (2008) found that personality traits exist in regional clusters. Better understanding the relationship between personality traits and local foods could enable local food marketers to better focus their message regionally.

### **Research Purpose and Objectives**

The purpose of this study is to examine the interaction effects of differently framed messages and personality traits on attitudes toward and intent to purchase local food. This



knowledge would be useful to farmers and ranchers who wish to expand their business in the local food market and for other businesses marketing local food. The following research questions guide this study:

1. What message frames positively influence attitude toward locally grown food?
2. What message frames positively influence intent to purchase locally grown food?
3. Do personality traits play a moderating role between message frames and attitudes about locally grown food?
4. Do personality traits play a moderating role between message frames and intent to purchase locally grown food?

### **Theoretical Framework**

The theories utilized in this study are Goffman's (1974) theory of framing, Ajzen's (1991) theory of planned behavior, and Digman's (1990) factor five model.

**Framing.** Goffman's (1974) framing theory describes how information is presented to the public and how audience members process that information. By highlighting certain attributes, the way a message is framed can draw attention to only a few aspects of an object or issue (Weaver, 2007). Thus, message frames make specific attributes especially salient (Scheufele & Tewksbury, 1999). Entman (1993) points out that frames are defined by what they include as well as what they omit.

Message frames can be evaluated from both a macro and a micro-level perspective (Scheufele & Tewksbury, 2007). From a macro-level, framing theory describes how information about an issue is presented from communicators to various audience members (Scheufele & Tewksbury). These messages set mental "frames of reference" for audience members (Scheufele, 1999, p. 107).

Over time, various frames create mentally stored clusters of information (Entman, 1993). From a micro-level, framing theory describes how people use this information as they form opinions on a given issue (Scheufele & Tewksbury, 2007). Thus, message frames might invoke or activate interpretive schema (Scheufele, 2000; Weaver, 2007). This study's focus was on framing theory from a micro-level perspective. The focal point was message effects in the context of local foods. To fully account for message effectiveness, attitude change, subjective norm, and perceived behavioral control as they relate to behavioral intent were also considered.

**Theory of Planned Behavior.** Ajzen's (1991) theory of planned behavior takes into account attitudes toward the behavior, subjective norms, and perceived behavioral control as antecedents to behavioral intent and overt behavior. The theory of planned behavior is an extension of Ajzen and Fishbein's theory of reasoned action (Ajzen). The theory of reasoned action differs from the theory of planned behavior in that it does not include perceived behavioral control (Ajzen, 1991).

Attitudes toward a behavior or object consist of three components, including affective, cognitive, and behavioral components (Triandis, 1971). Moreover, attitudes toward an object differ in terms of overall valence and strength (Maio & Haddock, 2015).

Subjective norms deal with social pressure to either engage in the behavior or not engage in the behavior (Ajzen, 1991). Perceived behavioral control refers to one's perceived ability to actually engage in the behavior under question (Ajzen). Not engaging in a behavior could be a result of limitations, rather than attitudes or subjective norms around that behavior (Ajzen). This is where the perceived behavioral control component is especially important. A person might have every intention to engage in a behavior, but could be kept from doing so because of physical or economic barriers.

The theory of planned behavior was used to evaluate the effectiveness of messages around local foods by specifically focusing on each component of the theory of planned behavior in relation to behavioral intent. To fully evaluate message effectiveness, personality traits as individual differences among audience members were also considered.

**The Factor Five Model.** Costa & McCrae (1992) describe personality traits as enduring dispositions. This is similar to Eysenck's (1970) definition of personality traits as an organization of one's overall character. Digman's (1990) factor five model, also referred to as the big five personality traits, seeks to unify personality research across five broad dimensions. These dimensions are extraversion/introversion, agreeableness/friendliness, conscientiousness, neuroticism/emotional stability, and intellect/openness (Digman, 1990).

Although several other personality models exist, the five factor model is applauded for having a great deal of construct validity (Digman, 1990; Fleeson & Jayawickreme, 2015; Rentfrow et al., 2008).

The factor five model was utilized to measure personality differences among the target audience. Taking personality traits into account as a potential moderating variable allows for a better understanding of the target audience. A better understanding of the target audience might lead to increased message effectiveness moving forward.

## CHAPTER 2. LITERATURE REVIEW

The way messages are presented to the public might affect the beliefs they hold regarding the object or issue under consideration (Goffman, 1974). In the current study, understanding how various messages around local food affect behavioral intent to purchase local foods was of central interest. Personality traits were also considered as potentially moderating the relationship between messages and behavioral intent. A more comprehensive review of framing theory follows in this section. The theory of planned behavior is then described as it relates to predicting behavioral intent. Next, a description of personality traits and the big five personality traits are described. The literature review section concludes with a set of specific research questions and hypotheses.

### **Message framing**

Goffman's (1974) framing theory is grounded in both philosophy and social psychology research on the perception of reality. According to Goffman, everyday human activity might be thought of as a strip of events determined by cultural standards, social expectations, and other various sources of exemplary representations of the self. Goffman further postulates that framing is the way people make sense of the world around them.

McCombs and Shaw (1993) suggest that the way an issue is framed can have immense impact on public opinion. In this way, frames describe problems, diagnose causes, make moral judgments, and suggest remedies, all of which can be vastly influential (Entman, 1993). Entman suggests that frames create mentally stored clusters of information, which guide the audience's interpretation of an issue. Although Goffman (1974) might refer to mentally stored clusters of information as interpretive schema, he too suggests that framing helps individuals to process

information. Chong and Druckman (2007) further solidify that framing is the process in which individuals conceptualize information about an issue.

The concept of framing can be measured as both an independent and dependent variable. Research on frames as a dependent variable generally falls under the category of frame-building (Scheufele, 1999). Frame building is more concerned with the construction of messages, rather than message effects (Scheufele & Tewksbury, 2007). On the other end of the spectrum, framing effects research is referred to as frame setting (Scheufele & Tewksbury, 2009). Framing effects research describes how people form opinions about a given issue (Scheufele & Tewksbury, 2007). Thus framing is both a macro and a micro-level construct (Scheufele & Tewksbury). Both of these perspectives are described in greater detail below.

**Framing as a Macro-Level Construct.** The field of sociology refers to frames as a macro-level construct. From this perspective, framing describes the way information is presented from communicators to audience members (Scheufele & Tewksbury, 2007). This is consistent with the idea of media frames, which describes how journalists purposefully construct stories to increase issue understanding among their audience members (Schuldt & Roh, 2014). Gamson, Croteau, Hoynes, and Sasson (1992) describe message frames as “a central organizing principle that holds together and gives coherence and meaning to a diverse array of symbols” (p. 384). Frames can also be thought of as the latent structure which organizes information (Gamson et al.) In application to political science, Berinsky and Kinder (2006) conclude that individuals makes sense of the world by the way in which information is presented to them, or the way an issue is *framed*. This is consistent with Goffman’s (1974) description of framing.

Over time, mass media is able to actively set frames of reference for audience members (Scheufele & Tewksbury, 2007). In this sense “frames” can often be culturally bound

(Tewksbury & Scheufele, 2009) and refer to group identity (Benford & Snow, 2000). For example, Schuldt and Roh (2014) conclude that the frames “global warming” and “climate change” evoke different interpretive schema between Republicans and Democrats (p. 542). In their study, subjects made different associations from memory after seeing the two types of frames, which suggests that “global warming” and “climate change” might be conceptualized differently between the two political groups (Schuldt & Roh). Surely mass media has the ability to set different frames of reference to each partisan group, i.e. Republicans and Democrats.

In the field of agricultural communications, framing as a macro-level construct has been used to examine a multitude of food-related topics. For example Meyers and Abrams (2010) conducted a content analysis of media coverage on organic foods. Meyers and Abrams concluded that frames around organic food highlight moral and ethical implications, without addressing scientific evidence. In this example, moral and ethical implications can be thought of as the dominant framework around organic food communications.

**Framing as a Micro-Level Construct.** On a micro-level, framing describes how people use information as they form opinions on a given issue (Scheufele & Tewksbury, 2007) and the effectiveness of those frames (Scheufele & Tewksbury, 2009). As previously mentioned, framing effects research suggests that the way in which information is presented might invoke interpretive schema (Scheufele, 2000; Weaver, 2007).

The underlying mechanisms of framing effects have been described as similar to the idea of priming, which comes from the field of psychology (Scheufele & Tewksbury, 2009). Under the premise of priming, neural nodes are connected to one another by associative pathways (Scheufele & Tewksbury). The activation of one node, through simple cues, can lead to the activation of another node (Scheufele & Tewksbury, 2009). Thus one might form positive or

negative associations with an object, based on how they are primed from the message (Scheufele & Tewksbury).

Gerber, Gimpel, Green, and Shaw (2011) uncovered the effectiveness of priming in their longitudinal study on political campaigns. Primes were found to create positive associative pathways with the elected governor (Gerber et al.). Although their effectiveness seems to decay over time, the effectiveness of primes can be strong (Gerber et al., 2011; Scheufele & Tewksbury, 2009). However, priming and framing effects are still qualitatively different according to Druckman. Druckman (2001) describes priming as a shift in “*belief content*” and framing effects as a shift in “*belief importance*” (p. 1044).

The focus of framing effects research differs slightly among several fields of study. In the field of psychology, the definition of framing can be borrowed from Freling, Vincent, and Henard (2014) as “presenting individuals with logically equivalent options in semantically different ways” (p. 95). Research along this line is referred to as valence framing. Early literature on valence framing effects can be traced back to Kahneman and Tversky’s (1979) prospect theory, which postulates that altering message frames might lead individuals to make different choices.

In the field of marketing and consumer preference, Levin (1987) elaborated on equivalency value frames with research on valence framing. Levin, Schneider, and Gaeth (1998) outline several types of valence frames including risky choice frames, goal frames, and attribute frames. Each type of valence frame casts important information in either a positive or negative light (Levin et al.).

Levin et al. (1998) describe risky choice frames as offering the audience a scenario with two possible options. One option is associated with a known outcome, while the other option is

associated with two possible, unknown, outcomes (Levin et al.). The unknown outcomes might be thought of as the *risky* choice. In both cases, frames can cast information in either a positive or negative light (Levin et al.)

Goal framing is especially prevalent in persuasive communication (Levin et al, 1998). Positive frames are associated with the potential reward of a certain behavior. In contrast, negatively framed messages are focused on negative outcome avoidance (Levin et al.)

Attribute frames occur when an object is described in terms of certain attributes or characteristics (Levin et al., 1998). Levin (1987) conducted early research on the effects of attribute framing by presenting subjects with two ground beef labels. The first label described the ground beef as 75% lean, while the second described the ground beef as 25% fat. Levin then asked subjects to rate each label association on several dimensions including taste, level of grease, level of quality, and fat content. Participants preferred the positively framed label, 75% lean, along each dimension (Levin). Levin suggested that the positive frame, 75% lean, created more positive associations among the subjects than the negatively framed message. Levin and Gaeth (1988) expanded this study to test the effect of attribute labeling after subjects were given samples of ground beef, each with an associated label of 75% lean or 25% fat. Although subjects still generally preferred meat associated with the positively framed label, the attribute framing effect was less drastic (Levin & Gaeth).

However, depending on the context, negatively framed messages can be equally effective. For example, Ganzach and Karsahi (1995) tested positively and negatively framed messages among credit card holders who had not used their credit card within the last three months to measure message effectiveness. Credit card purchases were evaluated to measure actual behavior change, based on the valence frame. Subjects who received negatively framed



messages about the disadvantages of using cash were much more likely to increase credit card use than subjects who received messages about the advantages of using a credit card (Ganzach & Karsahi, 1995).

However, equivalency definitions of framing described by Levin et al. (1998) differs from the field of political science, where framing refers to making certain aspects of an issue more salient than others (Druckman, 2001). An example of this type of research is Druckman's (2001) test on the effects of attribute framing around the issue of government assistance for the poor. One frame described the issue as increased government spending, while the other frame associated government assistance for the poor with humanitarianism. Druckman further analyzed the importance of source credibility between both frame types. Overall, source credibility proved to be statistically significant in both frame types. However in the credible source frame type, messages associated with humanitarianism resulted in a greater support for increased government assistance for the poor (Druckman). By selecting certain frames on an issue, those deemed as trustworthy, or credible, to the public are able to influence public opinion (Druckman). Druckman further postulates that framing effects occur because communicators convince the audience that certain aspects of an issue are more important than others. The "...speaker's emphasis on a subset of potentially relevant considerations causes individuals to focus on these considerations when constructing their opinions" (Druckman, 2001, p. 1042). In this example, subjects were more likely to support greater assistance for the poor if humanitarianism was made more salient from memory than government spending.

Similarly, Nelson, Clawson, and Oxley (1997) suggest that highlighting specific considerations of a news story can greatly influence public opinion. Nelson and colleagues found that presenting a story on a Klu Klux Klan (KKK) rally as a free speech frame, rather than a

public order frame, resulted in much higher tolerance for the KKK. Findings here suggest that the way in which an issue or object is framed can impact the associations made from long-term memory. Clearly, free speech creates a more positive cognitive association than public order.

An application of the this type of attribute framing in the field of agricultural communications can be found in Gorham and colleague's (2015) study on attribute framing of local foods. Gorham et al. used message frames to identify the importance of various attributes related to locally grown food. Important attributes included health, consumer preference for a product, and versatility. Interestingly enough, growing location and months of product availability were deemed as less important food related attributes (Gorham et al.). In this study, Gorham and colleagues highlighted various attributes related to locally grown food, rather than equivalency value frames around a single product. This type of attribute framing research has a similar interest to the current study.

The application of framing from Druckman (2001) and Gorham et al. (2015) is similar to Weaver's (2007) description of framing as drawing attention to certain attributes about an object or issue. By selecting a frame, some aspects of the object or issue are selected to be made more salient than others (Scheufele, 1999). From this perspective, frames are not only defined by what they include, they are also defined by what they omit (Entman, 1993).

In the current study, Entman's definition of framing is used as highlighting certain attributes and making them salient. According to Entman (1993) "[t]o frame is to *select some aspects of a perceived reality and make them more salient in a communicating text...*" (p. 52). With a narrow focus on local food, a "frame" can be thought of as the attributes selected to describe the object under consideration – i.e. local food. Agricultural communicators might

increase favorability toward locally grown food by highlighting only attributes that are especially relevant to consumers.

This type of message effect is similar to evoking support for humanitarian efforts (Druckman, 2001) and free speech rallies (Nelson et al., 1997). Similarly, the persuasive power of framing from a micro-level perspective has been proven as effective in research ranging from political campaigns (Gerber et al., 2011) to retail labeling techniques of ground beef (Levin et al., 1998). Although the context differs, highlighting attributes related to local foods might create similar shifts in belief importance as described by Druckman (2001).

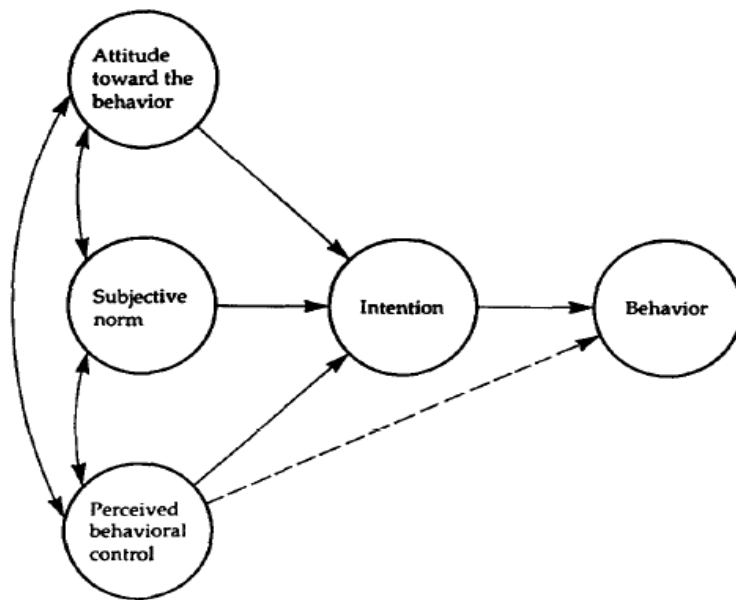
Attitudes are the summation of one's beliefs about an object (Chong & Druckman, 2007), and manipulation of frames and belief importance might alter one's overall attitude toward that object. Belief importance and attitude are both important predictors of behavioral intent and therefore behavior (Ajzen, 1991). A more complete explication of behavioral intent using the theory of planned behavior follows.

### **Theory of Planned Behavior**

Ajzen and Fishbein's theory of reasoned action is a behavioral prediction model that takes into account normative beliefs and attitudes (Ajzen, 1991). However, gaps between attitude and actual behavioral intent might be described by one's ability to perform the behavior. For this reason, the theory of planned behavior (TPB) is an extension of the theory of reasoned action, with an additional element of perceived behavioral control (Ajzen). Perceived behavioral control takes into account the non-motivational factors that might inhibit or catalyze both behavioral intent and overt behavior (Ajzen).

Under the theory of planned behavior, attitude toward the behavior in question, subjective norms, and perceived behavioral predict behavioral intent. However, the element of perceived

behavioral control might supersede attitude toward the behavior and subjective norms in influencing overt behavior. In other words, a person with the best intentions might not partake in the actual behavior due to real or perceived obstacles (Ajzen). The following figure comes from Ajzen (1991, p. 182).



**Figure 1. Ajzen's Theory of Planned Behavior**

Past food related research has used the theory of planned behavior model to predict purchase intent among consumers in several contexts. For example, Nurse Rainbolt et al. (2012) used the theory of planned behavior framework to evaluate consumer willingness to pay for locally produced tomatoes and locally produced apples. Nurse Rainbolt et al. further delineated the perceived behavioral control portion of the TPB into perceived consumer effectiveness and product availability. Perceived consumer effectiveness was evaluated along four dimensions including “social fairness, economy, environment, and social responsibility” (Nurse Rainbolt et al., 2012, p. 390). Nurse Rainbolt and colleagues concluded that the most significant components

in predicting consumer willingness to pay for locally grown apples were perceived social norms and perceived consumer effectiveness.

In the food labeling realm, Lorenz, Hartmann, and Simons (2015) used an extended theory of planned behavior model to evaluate the effectiveness of region of origin labeling to predict purchase intent among German consumers. In addition to cognitive attitude, subjective norms, and perceived behavioral control, Lorenz et al. also evaluated affective attitude, and personal norms in their prediction model. Each element of the model was evaluated through an online survey, with questions related to both cognitive and affective attitude as well as social and personal norms. Questionnaire items further asked respondents about their perceived behavioral control and intent to purchase regionally produced food (Lorenz et al.). Of specific interest to the current study, are findings that suggest all classic elements of the theory of planned behavior model were statistically significant (Lorenz et al.).

In the organic food context, Yazdanpanah and Forouzani (2015) applied the theory of planned behavior to predict purchase intent among Iranian college students. In addition to attitude, subjective norms, and perceived behavioral control, Yazdanpanah and Forouzani extended the theory of planned behavior model to include moral norms and self-identity. Data was collected through a face-to-face survey, with questionnaire items related to each element of the model. Respondents were asked the level they agree to statements related to each element of the model on a 5-point scale ranging from very low agreement to very high agreement. Findings suggest that attitude, perceived behavioral control, and moral norms were highly significant, while subjective norms and self-identity were not significant (Yazdanpanah & Forouzani).

Also in the realm of organic foods, Suh, Eves, and Lumbers (2015) used a mixed methods approach to evaluate purchase intent and overt behavior among South Korean

consumers. Suh and colleagues evaluated elements of the theory of planned behavior model with a questionnaire and follow-up interviews. Their findings suggest that attitude and subjective norms are more significant in predicting purchase intent than perceived behavioral control (Suh et al.). However, actual behavior was circumstantial (Sue et al.), which is in line with Ajzen's (1991) suggestion that overt behavior might be regulated by perceived behavioral control.

A comprehensive explication of each component in the theory of planned behavior follow. Attitudes are addressed first, followed by subjective norms, and perceived behavioral control.

**Attitude.** Most research on attitude and attitude change comes from the field of social psychology. Seminal work describes attitudes as a set of behavioral tendencies, or predispositions in various social situations (LaPierce, 1934). This definition of attitude is consistent with Triandis' (1971) description of attitude as the summation of various overt behaviors in a specific social situation. "An attitude is an idea charged with emotion which predisposes a class of actions to a particular class of social situations" (Triandis, 1971, p. 2). Drawing on these examples one might broadly conceptualize attitude as the repeated observable behavior that comes to the surface. However, the underlying mechanisms of this observable behavior, or attitude, are complex.

Attitudes might also be thought of as a person's beliefs about the object in question (Fishbein, 1970). Likewise, according to Petty and Cacioppo (1986), attitudes are the "...general evaluations people hold in regard to themselves, other people, objects, and issues" (p. 127). Thus, a person's attitude about a given object can be inferred from their beliefs about the object or action and these beliefs can be generally positive or negative (Fishbein, 1970; Ajzen &

Fishbein, 1977). Logic would follow that a person with favorable beliefs toward a given action or behavior is more likely to partake in that behavior (Ajzen & Fishbein, 1977).

Attitudes can be more discretely defined as consisting of an affective, cognitive, and behavioral component (Triandis, 1971; Crites, Fabrigar, & Petty, 1994). Triandis (1971) describes the cognitive component of attitude as the general idea associated with categories of items; the affective attitude component is emotionally charged, and the behavioral component of attitude is the antecedent to actual, overt behavior.

Findings from the realm of marketing research further describes the affective and cognitive components of attitude as consisting of both hedonic and utilitarian determinants. According to Batra and Ahtola (1991), "...the hedonic determinant of overall evaluations is presumed to be based on the consumer's assessment of how much pleasure he gets; his utilitarian determinant is based on his assessment about the instrumental value of the brand's functional attributes" (p. 161). From this perspective, the affective component of attitude is related to emotional rewards, while the cognitive component of an attitude is related to more functional needs.

Multidimensionality and valence are also defining characteristics of attitudes. A person might hold various feelings toward an overall evaluation of the object in question (Chong & Druckman, 2007). This is consistent with Ajzen's (1991) description of attitude as the summation of beliefs one holds in relation to a given object. These dimensions, or beliefs, might favor the behavior, while others do not favor the behavior in question (Chong & Druckman). For example, an attitude toward exercising could be the result of various dimensions including a desire to be fit (positively associated with exercise), and physical fatigue (negatively associated with exercise). The idea of positive or negative associations with an object or act is referred to as

valence in attitude research (Maio & Haddock, 2015; Petty, Briñol, & DeMarree, 2007). Each attitude dimension can be described in terms of both valence and strength (Maio & Haddock, 2015; Petty et al., 2007).

With the idea of multidimensionality in mind, Ajzen's (1991) description of attitude as the summation of beliefs one holds in relation to a given object becomes especially pertinent. Ultimately, the dimension or belief, with the greatest weight is the most impactful in predicting actual behavioral intent (Chong & Druckman, 2007). In addition to valence, Cohen, Fishbein, and Ahtola (1972) describe attitude as a function of both strength towards a given object and an evaluation, or weight, of those beliefs. Nelson et al. (1997) postulate that several considerations, or dimensions, play into ultimate attitude formation and these considerations might vary in importance. In the current study, Chong and Druckman's (2007) conceptualization of attitude was used as a "...weighted sum of a series of evaluative beliefs about that object" (p. 105). More narrowly defined for the context of local food, attitude is the summation of evaluative beliefs about local foods.

**Subjective Norms.** In the field of communication research, subjective norms are the idea that human behavior is guided by "perceptions of popularity" (Lapinski & Rimal, 2005, p. 128). Subjective norms can be conceptualized as existing at both a collective and an individual level (Lapinski & Rimal). Lapinski and Rimal describe collective norms as existing at the cultural or societal level, while individual norms are one's understanding of those collective behavioral norms. Both the field of communication research and social psychology describe norms as injunctive and descriptive (Lapinski & Rimal, 2005; Manning, 2009).

Descriptive norms are beliefs about what is occurring within certain cultures and social groups (Lapinski & Rimal, 2005). Although descriptive and individual standards generally



overlap, this is not always the case (Lapinski & Rimal). Descriptive norms generally create social pressure which is based on observance of other's behavioral standards (Manning, 2009). Thus one interprets their own subjective norm based on the larger descriptive, or cultural norm (Lapinski & Rimal, 2005).

This pressure creates injunctive norms, which is the belief one holds about how they should behave in a given situation (Lapinski & Rimal, 2005). From this perspective, injunctive norms are similar to subjective norms as the interpretation of socially acceptable behavior. In the field of consumer research, Tarkiainen and Sundqvist (2005) describe subjective norms as perceived social pressure to engage in or not engage in a given behavior. This is similar to Davis and colleagues' (2015) explanation of subjective norms as one's overall perception of others' disapproval or approval of their behavior.

Ajzen (1991) describes subjective norms in terms of normative beliefs. Normative beliefs deal with judgment that important others place on the behavior in question (Ajzen, 1991). This definition of subjective norms were applied in the current study as the strength of normative beliefs and the person's "motivation to comply" with the important other (Ajzen 1991, p. 195). In the context of local foods, subjective norms were thought of as the pressure one feels from important others to purchase locally grown food.

**Perceived Behavioral Control.** Perceived behavioral control was added to the Ajzen and Fishbein's theory of reasoned action to better account for behavioral intent when a person is not under complete volitional control (Ajzen, 1991). Before uncovering the meaning of perceived behavioral control, one must first consider behavioral intent. Deci and Ryan (1987) describe behavioral intent as a desire to avoid negative outcomes, while achieving positive outcomes. In the field of social psychology, autonomous individuals have a greater ability to initiate behavior

which leads to desired positive outcomes (Deci & Ryan). Autonomy and perceived behavioral control is akin to Bandura's (1977) concept of self-efficacy (Ajzen & Madden, 1986; Deci & Ryan, 1987). The premise of self-efficacy is that individuals are more likely to achieve behaviors which they believe they are able to achieve (Bandura, 1977). In other words, those who are confident in a given behavior will complete that behavior with more success.

Research from both psychology and marketing further delineate perceived behavioral control as consisting of both an internal and an external component (Kidwell & Jewell, 2003). Kidwell and Jewell (2003) describe the internal perceived behavioral control component as "...when an individual perceives that he or she possesses control over personal resources, such as requisite skills, confidence, and ability, to perform the behavior" (p. 627). The external component relates to "external or extrinsic" obstacles that might inhibit one from performing a behavior in a more literal sense (Kidwell & Jewell). From this perspective, the intrinsic element of perceived behavioral control most closely resembles Bandura's (1977) concept of self-efficacy.

Because of these internal and external components, perceived behavioral control can have both a direct and an indirect effect on overt behavior. According to Ajzen and Madden (1986), perceived behavioral control has a direct effect on overt behavior when an obstacle prevents one from performing the behavior. Such obstacles can be thought of as Kidwell and Jewell's (2003) idea of external barriers to behavior performance. Ajzen and Madden (1986) describe perceived behavioral control as indirectly effecting overt behavior through behavioral intent. From Kidwell and Jewell's (2003) perspective, perceived behavioral control might indirectly influence overt behavior through intrinsic factors such as ability and self-confidence to achieve the behavior.

Several researchers agree that perceived behavioral control predicts a greater degree of behavioral intent and overt behaviors in situations where one does not have complete volitional control to complete the behavior under consideration (Ajzen, 1991; Yang-Wallentin, Schmidt, Davidov, & Bamberg, 2004). Ajzen and Madden (1986) describe behaviors as under volitional control when a person has the resources available to actually complete the specific given behavior. Past research indicates that local food can be perceived as more expensive and less convenient to purchase than traditional foods (Wetherill & Gray, 2015). With such barriers in consideration, perceived behavioral control should be evaluated in the current study.

A more discrete definition of perceived behavioral control comes from Ajzen (2005) as “...the perceived ease or difficulty of performing the behavior and it is assumed to reflect past experience as well as anticipated impediments and obstacles” (p. 111).

Scholars have proven that personality traits might play a moderating role in intent to purchase organic food using the theory of planned behavior (Chen, 2007). Additionally, personality traits have been shown to moderate the effectiveness of attribute framing (Gamliel et al., 2014). Because the current study heavily depends on both attribute framing and the theory of planned behavior, one might conclude that personality traits should be considered as moderating the relationship between frame type and behavioral intent in the current study. A detailed description of personality traits follows.

### **Personality Traits**

Personality traits can be thought of as enduring dispositions or behavioral patterns (Costa & McCrae, 1992). According to Eysenck (1970) “[p]ersonality is the more or less stable and enduring organization of a person’s character, temperament, intellect, and physique, which determines his unique adjustment to the environment” (p. 2).

Research from the field of psychology has identified two broad personality dimensions at play. Alpha consists of agreeableness, conscientiousness, and emotional stability (Olson, 2005). In contrast, beta consists of extraversion and intellect, otherwise referred to as openness (Olson). However, after these broadly defined personality traits, researchers are in less agreement about further delineations. In his critique and evaluation of personality measures Digman (1990) identified several predominant models in the field of personality research. These models include the factor-five model, Cattell's system, Eysenck's three-factor model, Guilford's system, and Murray's need system, and the interpersonal circle system (Digman).

Cattell's system consists of sixteen personality measures. Some might assume that this degree of parsimony leads to a greater degree of validity. Cattell & Cattell (1995) describe the most recent personality model to include extraversion, anxiety, tough-mindedness, independence, and self-control as global factors. The 16P primary list includes warmth, reasoning, emotional stability, dominance, liveliness, rule-consciousness, social boldness, sensitivity, vigilance, abstractedness, privateness, apprehension, openness to change, self-reliance, perfectionism, and tension (Cattell, & Cattell). Cattell (1950) defines personality as '[t]hat which permits prediction of individual differences – freed of intraindividual variation – of response in a defined situation' (p. 466). However, Digman (1990) points out that this system has not survived replication.

Eysenck's (1970) three-factor model consists of extraversion, neuroticism, and psychoticism. Eysenck's extensive review of personality literature suggests that two personality traits come to the surface in personality research. These traits are introversion-extraversion and emotionality-stability; both are described as linked to neural mechanisms (Eysenck). Psychoticism is the third element in Eysenck's (1970) model, which is described as feelings

ranging from “delusions” to “suspicious” (p. 122). The three-factor model is criticized for a lack of parsimony. For example, the psychoticism aspect of Eysenck’s model might be thought of as a mix between conscientiousness and agreeableness in the five-factor model (Digman, 1990). The factor-five model will be described in greater detail below.

Guilford (1975) proposed a model that takes into account social activity, introversion-extraversion, emotional stability, and paranoid disposition. Guilford’s System and Eysenck’s system are similar in the fact that they do not perceive intellect, also referred to as openness, as a personality trait, but rather a temperament (Digman, 1990).

Murray’s need system describes several “personality needs” which provide some overlap with Maslow’s hierarchy of needs (Cunningham & Wakefield, 1975, p. 594). Murray’s Need System only further solidifies the robustness of the factor-five model (Digman, 1990).

The interpersonal circle model is centered on two axes, love-hate and power (Digman, 1990). However, Digman points out that both of these dimensions can be described by the factor-five model.

The factor-five model is widely accepted in personality research (Digman, 1990; Fleeson & Jayawickreme, 2015; Obschonka, Schmitt-Rodermund, Silbereisen, Gosling, & Potter, 2015). Based on acceptance from past scholarship, the factor-five model was used in this study to account for personality differences. The factor-five model consists of neuroticism, extraversion, openness, agreeableness, and conscientiousness. A more descriptive explanation of each trait dimension follows.

**Neuroticism.** Past researchers have linked neuroticism to poor coping mechanisms, and morbidity (Rentfrow et al., 2008). In the field of economics, researchers have linked low levels of neuroticism to entrepreneurship-prone personality types (Obschonka et al., 2015). A study of

personality types across regions has associated high levels of neuroticism to poor health, and antisocial behavior (Rentfrow, et al., 2008).

The counter to neuroticism is sometimes coined emotional stability. Chang, Connelly and Geeza (2012) describe emotional stability as a degree of vulnerability to emotional turmoil. In the current study, the description of neuroticism comes from Loehlin, McCrae, Costa, and John (1998) as anxious, self-pitying, tense, touchy, unstable, and worrying.

**Extraversion.** Conceptually, extraversion seems fairly simplistic to define. However, past research has evaluated extraversion on multiple dimensions – both among individuals and regionally among populations. Research on regional clusters of personality traits have shown that extraversion is positively related to a multitude of descriptors including social involvement and religiosity (Rentfrow, et al. 2008). High levels of extraversion are also positively correlated to entrepreneurship (Obschonka et al., 2015). Other scholars discretely define extraversion as an acute sensitivity to rewards related to goal pursuit (Change, et al., 2012). In the current study, extraversion is conceptualized as active, assertive, energetic, outgoing, and talkative (see Loehlin et al., 1998).

**Openness.** Defining the openness dimension of the factor-five model is the most ambiguous. Past research has also defined this dimension as intellect (Costa & McCrae, 1992; Digman, 1990). Intellect leads one to think of mental processing ability, rather than a culturally tolerant perspective of the world. Although IQ scores and openness scores are strong and positively correlated, the two should not be confused (Costa & McCrae, 1992).

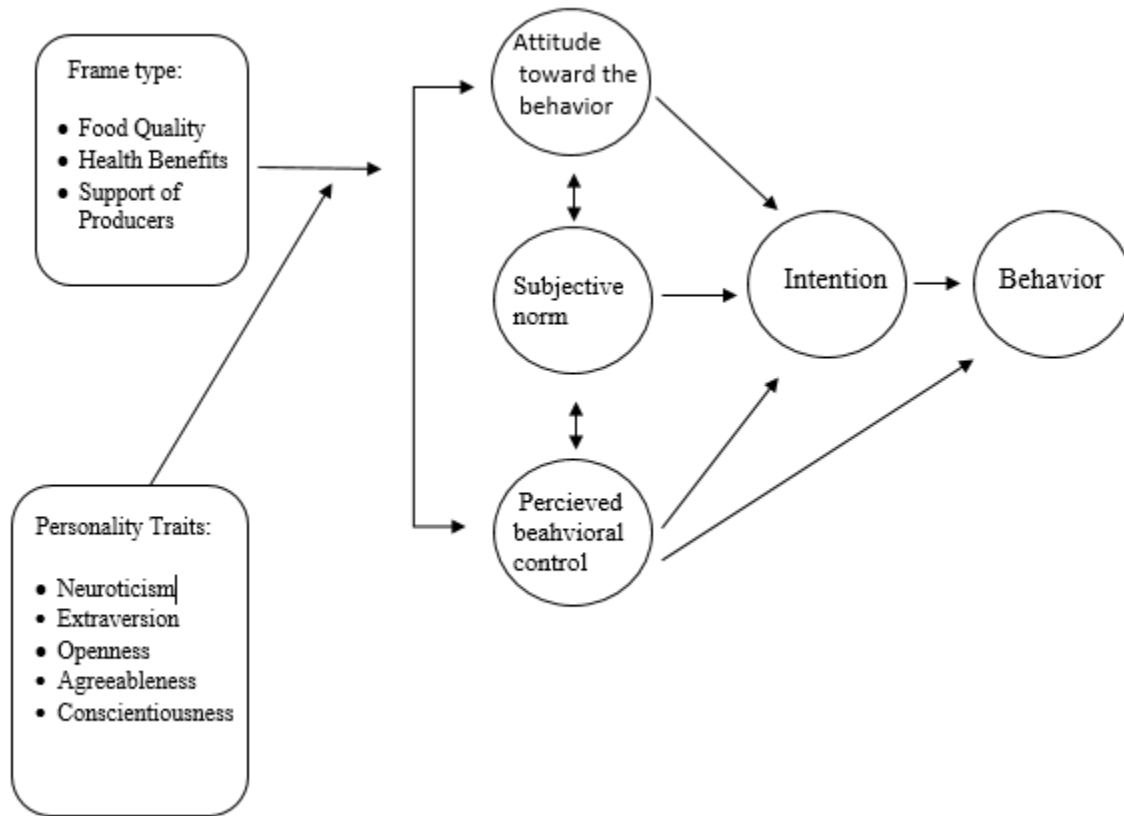
This study focused on openness as part of the factor-five model, rather than intellect. Openness is related to a tenacity for exploring the surrounding world (Chang, et al., 2012). Those who possess a greater level of openness are also likely to be more liberal in their values system;

they are likely to be creative, curious, and artistic (Rentfrow et al., 2008). In the current study, those who are open can be thought of as artistic, curious, imaginative, insightful, original, and those who have a wide array of interests (see Loehlin et al., 1998).

**Agreeableness.** Not surprisingly, agreeableness is positively associated with descriptors such as warmth and friendliness (Rentfrow et al., 2008). Those who are more agreeable are essentially more pro-social (Rentfrow et al.) and altruistic (Digman, 1990). Agreeableness on the trait level is also associated with other positive characteristics such as health and longevity (Rentfrow et al., 2008). In the current study, agreeableness is conceptualized as appreciative, forgiving, generous, kind, sympathetic, and trusting (see Loehlin et al., 1998).

**Conscientiousness.** Conscientiousness has positive associations with academic achievement, and has been alternatively termed *will* or *will to achieve* (Digman, 1990). Not surprisingly, conscientiousness is associated with responsibility, self-discipline, and regular physical exercise (Rentfrow et al., 2008). More narrowly defined, the conscientiousness trait is related to behavioral control as one engages in goal pursuit (Chang, et al., 2012). Conscientiousness can be thought of as efficient, organized, planful, reliable, responsible, and thorough (see Loehlin et al., 1998).

## Theoretical Model



**Figure 2. Theoretical Model in the Current Study**

The theoretical model shown above was applied to the context of local foods. The current study specifically evaluated framing effects around three local food messages, each of which highlighted different local food attributes. Once again, the multi-faceted concept of framing was applied as “...to select some aspects of a perceived reality and make them more salient in a communicating text...” (Entman, 1993, p. 52). Three individual message frames were created to highlight local food attributes of quality, health benefits, and support for local producers.

Attitude change toward local food was the dependent variable of specific interest. As previously mentioned, in the current study, an attitude can be thought of as a “...weighted sum of



a series of evaluative beliefs about that object” (Chong & Druckman, 2007, p. 105). Attitudes are also described as differing in terms of valence and strength (Maio & Haddock, 2015; Petty et al., 2007). Likewise, research from Nelson et al. (1997) suggests that frames influence opinion by making certain aspects of an issue or object more important and salient, which in turn affects the final attitude. In the current study, we sought to uncover if highlighting quality, health, or support of local farmers created positive attitude change toward local foods among consumers. We must also mention that a person might have multiple beliefs toward an issue or object, but the belief with the greatest weight will result in ultimate attitude formation (Nelson et al, 1997; Chong & Druckman, 2007). By highlighting, or framing, certain attributes about local food, evaluative beliefs, or attitudes, might become stronger and more positive toward local food.

Secondarily, subjective norms, perceived behavioral control, and behavioral intent were also evaluated under the full TBP model in relation to local foods. As previously discussed, subjective norms are conceptualized as “motivation to comply” with important others (Ajzen, 1991, p. 195). Perceived behavioral control is “...the perceived ease or difficulty of performing the behavior...” (Ajzen, 2005, p. 111). Attitudes, subjective norms, and perceived behavioral intent are all antecedent to behavioral intent (Ajzen, 1991).

### **Specific Research Questions and Hypotheses**

Literature on motivating factors to purchase locally grown food shows that quality (Brown, 2003; Food Processing Center, 2001; Kezis et al., 1998; Schneider & Francis, 2005; Toler et al., 2009), health (Food Processing Center, 2001; Kezis et al., 1998; Schneider & Francis, 2005; Zepeda & Leviten-Reid, 2004), and support of local farmers (Food Processing Center, 2001; Kezis et al., 1998; Schneider & Francis, 2005; Zepeda & Leviten-Reid, 2004) are

all important attributes among consumers. Using the TPB model, the first research question in this study follows:

RQ 1: How do different message frames affect attitude, perceived behavioral control, subjective norms, and behavioral intent regarding local foods?

**Personality Traits as a Moderating Variable.** Past research has shown that personality traits have a moderating role in attribute framing (Gamliel et al., 2014). Likewise, Chen (2007) suggests that personality traits moderate the relationship between intent to purchase and attitudes about organic food. We specifically sought to uncover if personality traits moderate the relationship between frame type and attitude toward local food. The specific personality traits under investigation come from the factor-five model. Under the factor-five model, these personality traits are neuroticism, extraversion, openness, agreeableness, and conscientiousness (Digman, 1990). With this in mind, the second research question under investigation follows:

RQ 2: How do different message frames affect attitude with personality traits as a moderating variable?

The personality trait openness is related to a propensity for exploring the surrounding world and trying new experiences (Chang et al., 2012; Rentfrow et al., 2008). With this assumption in mind, one might presume those who score highest in openness are more likely to try local foods, regardless of frame type.

Hypothesis 1: Those who score high in openness will show positive attitudes toward local food after viewing all message frames highlighting local foods.

Rentfrow and colleagues (2008) found a link between neurotic personality types and poor health. With this information, one might presume that frames highlighting health benefits related

to local foods are less effective among those with higher scores of neuroticism than the remaining four personality traits.

Hypothesis 2: Those who score high in neuroticism will show the least attitudinal change from message frames highlighting health benefits of local foods.

Gamliel et al. (2014) indicates those who score high in agreeableness are more likely to be influenced by attribute framing related to social justice issues. In the context of the current study, support of local farmers might be conceptualized as a social justice issue. With this logic, those who score higher in agreeableness than the other four personality types might be more influenced by message frames highlighting support of local farmers.

Hypothesis 3: Those who score high in agreeableness will show positive attitudes toward local foods after viewing the message frame highlighting support of local farmers.

Past research indicates those who are more conscientious are also more concerned about maintaining their health (Chang et al., 2012; De Bruijn, Brug, & Van Lenthe, 2009). With this in mind, those who score higher in conscientiousness than the other four personality types are likely to be more influenced by message frames highlighting health benefits of local foods. In addition to health concerns, Gamliel et al. (2014) suggests those who score high on conscientiousness are more susceptible to attribute framing on social justice issues. As previously mentioned, in the current study, support of local farmers might be thought of as a social justice issue. With this in mind, one might presume that those who score higher in conscientiousness than the remaining four personality traits are more influenced by message frames highlighting health as well as support of local famers.

Hypothesis 4: Those who score high in conscientiousness will show positive attitudes toward local foods after viewing the message frame highlighting health benefits or support of local farmers.

### CHAPTER 3. METHODOLOGY

The purpose of this study was to examine the interaction effects of differently framed messages and personality traits on attitudes toward and intent to purchase local food. The overarching objective was to uncover knowledge which might be useful to farmers, ranchers, and other small business owners who wish to expand their business in the local food market.

Prior research revealed several motivators for local food consumers. Food quality has been cited several times among consumers as important when purchasing local foods (Brown, 2003; Food Processing Center, 2001; Kezis et al., 1998; Schneider & Francis, 2005; Toler et al., 2009). Those who purchase locally grown food have also described health benefits as an important motivating factor (Food Processing Center, 2001; Schneider & Francis, 2005; Zepeda & Leviten-Reid, 2004). Likewise, support of local food producers can motivate consumers to purchase local food (Nurse Rainbolt et al., 2012; Schneider & Francis, 2005; Toler et al., 2009). This previous literature's findings were the premise for message frame creation in the current study.

Although limited research exists regarding framing effects on local foods, the literature reviewed is prescriptive regarding several personality traits and receptivity to frame type. For example, those who score high on neuroticism are likely to be less concerned with their health (Rentfrow et al., 2008), and people who score high on openness are more likely to explore new experiences (Chang et al., 2012). Additionally, those who score high on agreeableness are more likely to be concerned with issues related to social justice (Gamliel et al., 2014). Likewise, those who score high on conscientiousness are also more prone to be concerned with social justice

issues (Gamliel et al., 2014), and will likely be concerned with maintaining good health (Chang et al., 2012; De Bruijn et al., 2009).

Based on the literature reviewed on local foods, framing effects, and personality traits, the following research questions and hypotheses were addressed:

RQ 1: How do different message frames affect attitude, perceived behavioral control, subjective norms, and behavioral intent regarding local foods?

RQ 2: How do different message frames affect attitude with personality traits as a moderating variable?

Hypothesis 1: Those who score high in openness will show positive attitudes toward local food after viewing all message frames highlighting local foods.

Hypothesis 2: Those who score high in neuroticism will show the least attitudinal change from message frames highlighting health benefits of local foods.

Hypothesis 3: Those who score high in agreeableness will show positive attitudes toward local foods after viewing the message frame highlighting support of local farmers.

Hypothesis 4: Those who score high in conscientiousness will show positive attitudes toward local foods after viewing the message frame highlighting health benefits or support of local farmers.

## **Research Design**

A post-test only experimental design was employed to test the effects of message type with behavioral intent to purchase local foods. Each subject was randomly assigned to one of three treatment groups or the control group. Ajzen's (1991) theory of planned behavior was utilized to measure local food purchase intent among consumers. Personality traits were measured as a potential moderator of the relationship.

According to Wimmer and Dominick (2013), an experimental design allows for added control of confounding variables. Another advantage of experimental research is the ability to draw causal relationships between variables (Wimmer & Dominick). In the context of local food marketing, this is useful in understanding which frame type relates to the greatest behavioral intent to purchase locally grown food. Although experimental designs can be extremely useful, they do have several disadvantages. Experimental designs do not occur in a natural setting, which can have an effect on real world applicability (Wimmer & Dominick). Additionally, researchers should be careful not to introduce their own bias into the study through the experimental design (Wimmer & Dominick).

### **Controlling for Internal and External Validity**

Internal validity was controlled for through random assignment of subjects to each treatment group. In addition to personality traits, other potential intervening variables were also taken into consideration. Such variables include age, gender, primary income spent on food, and weekly spending habits on food, including meals out. Construct validity was controlled for through pre-testing. One-hundred twenty-five participants were used in the pre-testing phase to clarify questions in the instrument, check reliability of scales, and ensure the message frames were operating as intended.

Based on recommendations collected from the pre-test, several response items were edited. Due to confusion on the meaning of conventional food, the wording of the fourth attitude response was changed from “Local food products are more attractive than conventional food” to “Local food products are more attractive than non-local food.” Confusion on the meaning of the fourth response item relating to perceived behavioral control was also brought up among several pre-test participants. Participants were unsure if the question “How difficult would it be for you

to buy local foods?” related to availability or cost. So, the fourth question on perceived behavioral control was broken into “How difficult would it be for you to buy local foods in terms of availability” and “How difficult would it be for you to buy local foods in terms of cost?”

Manipulation checks were administered as an added measure of construct validity. Participants were asked open-ended questions to see what they believed the message was emphasizing and how the message made them feel about local foods. This was used to help determine that the stimulus material and questionnaire items actually measured attitudes and behavioral intent toward local food. Results from the pre-test showed that all frames were significantly different from one another in terms of what pre-test participants believed the frame emphasized and how it made them feel.

Based on pre-test results, we also made the IRB consent form a forced-choice response to ensure that participants were fully aware of our study before proceeding. Additionally, the randomly assigned message frames were displayed for 10 seconds before respondents could click to continue through the survey to answer questions on their attitudes, subjective norms, perceived behavioral control, and behavioral intent to purchase local foods. This measure was taken to help ensure that participants viewed their randomly assigned message frame for a standardized minimum amount of time. They were informed on the screen of the 10-second waiting period and encouraged to examine the information.

## **Participants**

A convenience sample consisting of 408 students at Colorado State University participated in this study. About 100 students were exposed to each frame type around local foods and about 100 students were exposed to the control frame. To meet Cohen’s (1988) suggestion for 80% statistical power, 400 participants were needed. Participants were recruited



on a volunteer basis. Because convenience sampling methods were used, caution should be used in generalizing the findings of this study.

Extra credit and the chance to win one of two Amazon gift cards worth \$25 was used as an incentive in classes where the instructor allowed us to do so. In these classes, an alternative extra credit assignment was offered for students who did not wish to participate in the study. In classes where the instructor did not allow us to offer extra credit for study participants, the chance to win one of two Amazon gift cards worth \$25 each was the only incentive. Because of an unexpectedly low response rate, the survey was launched twice. Only students from general education courses were recruited in both survey launches.

### **Independent Variables**

Three messages were created as stimulus material. Literature on factors that motivate consumers to purchase local foods include food quality, health benefits, and support of local farmers (Brown, 2003; Food Processing Center, 2001; Kezis et al., 1998; Nurse Rainbolt et al., 2012; Schneider & Francis, 2005; Toler et al., 2009; Zepeda & Leviten-Reid, 2004). For each treatment group, an advertisement promoting local food including a photograph and text-based message was created.

The frame was embodied in the photo and text content. This type of frame, which includes both visuals and text, is referred to as multimodal framing (Geise & Baden, 2015). Recent research on multimodal framing shows that both visual and text based messages can have powerful effects on audience members (Geise & Baden, 2015; Powell, Boomgaarden, De Swert, & de Vreese, 2015). “Multimodal messages wherein different components reinforce each other’s suggested meaning (high visual – high verbal redundancy) should benefit both from the salience, vividness, and memorability of visuals, and from the guided structuring of linguistic

reorientations” (Geise & Baden, 2015, p. 63). Multimodal research further reveals that images work through the heuristic processing system, while text has a greater effect with those systemically processing information (Powell et al., 2015). Petty and Cacioppo (1986) describe the heuristic processing system as the cognitive process that audience members use when they are evaluating a message with greater scrutiny. In contrast, those who interpret messages less carefully use heuristic processing (Petty & Cacioppo). A multimodal frame was used to help ensure that a clear message is presented to subjects, who either quickly glance at the message or take several seconds to fully read and interpret the message with more scrutiny.

To ensure participants were only reacting to the frames, all other design aspects between the groups were kept consistent: layout, typography, and all other textual content not pertaining to the frame. Frame 1 highlighted quality attributes associated with local foods. Frame 2 highlighted health related attributes of local foods. According to Luszczynska, Tryburcy, and Schwarzer (2007), messages that bolster one’s self-efficacy are likely to be useful in health-based communication meant to increase fruit and vegetable consumption. With this in mind, text for the health frame was centered on increasing participant self-efficacy to achieve their health goals. Frame 3 highlighted support of local farmers. Research from Schneider and Francis (2005) reveals that local food consumers are concerned with helping family owned farms. Thus, both text and visual elements in the support local farmers frame highlighted attributes relating to family owned farms. The control group viewed an ad highlighting skiing in the mountains. Due to the post-test only design, the fourth frame was used as a comparison for the three frames types. Because those who seek locally grown food are more likely to purchase vegetables and fruit than meat products (Food Processing Center, 2001), only images showing fruits and vegetables were chosen as stimulus material. All visuals were selected from online databases and

were chosen based on how well they represent each frame type. Visuals were also selected on aesthetic appeal.

### **Dependent Variables and Questionnaire Items**

As previously mentioned, attitude, subjective norms, perceived behavioral control, and behavioral intent were the dependent variables under consideration. Attitude, subjective norms, and perceived behavioral control were measured through questions drawn from previous research on purchasing intent of organic food (see Chen, 2007). Chen's (2007) questionnaire is based on Steptoe and colleague's (1995) Food Choice Questionnaire that was later adopted by Bredahl's (2001) research on behavioral intent to purchase genetically modified foods. Measurements relating to behavioral intent come from consumer buying intentions of fish (see Verbeke & Vackier, 2005).

**Attitude.** Similar to Chen (2007), questionnaire items relating to attitude were measured using a 7-point Likert scale ranging from (1) strongly disagree, to (7) strongly agree. Chen's (2007) questionnaire items relating to attitude are a reliable measure, with a Cronbach's value of 0.75. Word choice was altered slightly to measure attitudes toward local food, rather than organic food. The following questions assessed attitudes about local foods: Note, three questionnaire items are negatively worded to assess internal validity.

Local food products are healthier

Local food products have superior quality

Local food products are a fraudulent marketing scheme \*

Local food products are more tasty

Local food products are worse than conventional ones \*

Local food products are more expensive than conventional food \*

Local food products are more attractive than non-local food

Local food products have no harmful effects

Local food products are in fashion

\* (reverse-coded)

**Subjective norms.** Also following the question items in Chen's (2007) research, items relating to subjective norms were measured on a 7-point Likert scale ranging from (1) definitely avoid to (7) definitely buy. These questions are reliable with a Cronbach's alpha of 0.74.

Questionnaire items related to subjective norms follow:

Most people who are important to me think that I should *definitely avoid – definitely buy* local food.

Most people who influence what I do, think that I should *definitely avoid – definitely buy* local food.

**Perceived behavioral control.** Questionnaire items relating to perceived behavioral control were also borrowed from Chen (2007), with answers ranging on a 7-point Likert scale from (1) completely disagree to completely agree (7). In Chen's study, these questionnaire items had a Cronbach's alpha of 0.79.

If locally produced foods were available in the shops, nothing would prevent me from buying them

The following question item were measured using a 7-point Likert scale ranging from (1) absolutely no control to (7) complete control.

How much control do you have over whether you will eventually buy local foods?

The remaining three questionnaire items also relate to perceived behavioral control and purchase intent, but had a Cronbach's alpha of 0.80 in Chen's (2007) study. They were included

in the present study to assess each subject's perceived ability to purchase locally grown foods. The following two questions were measured using a Likert scale ranging from (1) completely disagree to (7) completely agree.

Even if I should want to buy local foods, I do not think I would ever be able to do so \*

If local foods were available in the shops, I could easily buy it if I wanted to

The following question was measured using a 7-point Likert scale, ranging from (1) extremely difficult to (7) extremely easy.

How difficult would it be for you to buy local foods in terms of availability?

How difficult would it be for you to buy local foods in terms of cost?

\* (reverse coded)

**Behavioral Intent.** Behavioral intent was further analyzed with three additional questions. Items relating to behavioral intent were altered slightly from Verbeke and Vackier's (2005) research on consumer preference toward fish using the theory of planned behavior. The measurement is reliable with a Cronbach's alpha of 0.90. Items were measured on a 7-point Likert scale ranging from (1) completely disagree to (5) completely agree.

The chance that I will eat local food in the next 2 weeks is high

I am planning to eat local food in the next 2 weeks

My willingness to eat local food is high

**Factor-five model on personality traits.** Personality traits were evaluated using the factor-five model, which includes neuroticism, extraversion, openness, agreeableness, and conscientiousness. A questionnaire developed by John, Donahue, and Kentle (1991) was used (Appendix N).

## **Procedure**

The experiment was administered online using Qualtrics. Subjects received a link to participate via email. Once they were on the Qualtrics platform, subjects were given a personality test using the factor-five model. This measured the big five personality traits as potentially moderating the relationship between local food messaging and attitude change. Subjects were then shown one of three frames around local food, or the control frame. All subjects were then asked to complete a short questionnaire on local food. The survey ended with demographic questions (Appendix O). As previously discussed, the survey was launched twice to increase the sample size of the study.

## **Materials**

Three messages were created as stimulus material. Frame 1 highlighted quality attributes associated with local foods. Frame 2 highlighted health related attributes of local foods. Frame 3 highlighted support of local farmers. Frames 1, 2, and 3 consisted of images and text explicitly illustrating the frame type. Frame 4 was a control frame, highlighting skiing in the mountains. Due to the post-test only design, the fourth frame was used as a comparison for the first three frames. See Appendix O for the full survey and stimulus material.

## **IRB Approval**

As required per Colorado State University guidelines, approval from the Internal Review Board for experiments with human subjects was granted before proceeding with data collection for both survey launches. Approval was granted for the first survey launch on February 15, 2016 (Appendix J). Approval was granted for the second survey launch on March 10, 2015 (Appendix K).

## **Data Analysis**

Data was analyzed with SPSS software to test for causal links between stimulus material and dependent variables in the theory of planned behavior – attitudes, subjective norms, and perceived behavioral control. A multivariate analysis of variance (MANOVA) was used to determine effects of experimental groups, i.e. frame type, on each dependent variable relating to the theory of planned behavior.

Potential moderating effects between the dependent variables under consideration and personality traits were also evaluated. Research question two and hypotheses one through four were evaluated separately using one-way analysis of covariance (ACNOVA).

## CHAPTER 4. RESULTS

A total of 408 respondents participated in the study. The sample size was reduced to 392 total responses after surveys that were mostly incomplete were taken out of the study

### **Scale Construction and Reliabilities**

With local foods as the central focus, this study evaluated attitudes, subjective norms, perceived behavioral control, and behavioral intent as dependent variables. The personality traits neuroticism, extraversion, openness, agreeableness, and conscientiousness were taken into account as moderating variables. Message frames highlighting health benefits, quality of food, and support of local farmers were the main independent variables under consideration. Covariates and dependent variables were measured through multiple scale items and were used throughout the study. The constructs under consideration were tested for reliability.

**Attitude Scales:** A reliability test of nine attitude scales showed that the seventh statement assessing attitude, “Local food products are more expensive than non-local foods,” had a lower reliability than the other eight statements. Removing the seventh statement from the attitude assessment increased the Cronbach’s Alpha coefficient from .68 to .76 (Table 2).



**Table 2. Attitude Scale Inter-Item Consistency Statistics**

	<i>M</i>	<i>D</i>	Corrected Item-Total Correlation	Alpha if Item Deleted
Local food products are healthier.	4.65	1.36	.59	.60
Local food products have superior quality.	4.79	1.24	.63	.60
Local food products are more tasty.	4.70	1.28	.60	.60
Local food products are more attractive than non-local products.	4.95	1.36	.51	.62
Local food products are in fashion.	5.43	1.19	.27	.67
Local food products have no harmful effects.	3.58	1.34	.18	.69
Local food products are more expensive than non-local food.	2.92	1.37	-.15	.76
Local food products are a fraudulent marketing scheme.	4.92	1.35	.38	.65
Local food products are worse than non-local food products.	5.26	1.08	.35	.66

Note. Scale 1 = Strongly Disagree and 7 = Strongly Agree

**Subjective Norms Scales:** A reliability test of two subjective norms statements revealed a high reliability, with a Chronbach's Alpha of .88 (Table 3).

**Table 3. Subjective Norms Scale Inter-Item Consistency Statistics**

	<i>M</i>	<i>D</i>	Corrected Item-Total Correlation	Alpha if Item Deleted
Most people important to me, think I should definitely _____ local food.	4.95	.96	.79	-
Most people who influence what I do, think that I should _____ local food.	4.93	1.00	.79	-

Note. Scale 1 = Definitely Avoid and 7 = Definitely Buy

**Perceived Behavioral Control Scales:** A reliability test of six statements measuring perceived behavioral control had the lowest reliability with a Chronbach's Alpha of .60. Removing one of the six statements would not have increased the reliability of the perceived behavioral control scale (Table 4).

**Table 4. Perceived Behavioral Control Scale Inter-Item Consistency Statistics**

	<i>M</i>	<i>D</i>	Corrected Item-Total Correlation	Alpha if Item Deleted
If locally produced foods were available in the shops, nothing would prevent me from buying them.	4.51	1.42	.29	.58
How much control do you have over whether you will eventually buy local foods?	5.41	1.18	.29	.58
If local foods were available in the shops, I could easily buy it if I wanted to.	5.22	1.16	.46	.51
How difficult would it be for you to buy local foods in terms of availability?	4.52	1.20	.09	.60
How difficult would it be for you to buy local foods in terms of cost?	3.55	1.23	.40	.53
Even if I should want to buy local foods, I do not think that I will ever be able to do so	5.30	1.28	.35	.55

*Note.* For question items 1, 3, and 6: Scale 1 = Strongly Disagree and 7 = Strongly Agree  
For question items 4 and 5: Scale 1 = Extremely Difficult and 7 = Extremely Easy  
For question item 2: Scale 1 = Absolutely No Control and 7 = Complete Control

**Behavioral Intent Scales:** Behavioral Intents scales were quite reliable. A reliability test of three statements measuring behavioral intent revealed a Chronbach's Alpha of .82 (Table 5).

**Table 5. Perceived Behavioral Control Scale Inter-Item Consistency Statistics**

	<i>M</i>	<i>D</i>	Corrected Item-Total Correlation	Alpha if Item Deleted
The chance that I will eat local food in the next 2 weeks is high.	4.40	1.56	.75	.68
I am planning to eat local foods within the next 2 weeks.	4.24	1.51	.77	.65
My willingness to eat local foods is high.	5.21	1.33	.53	.89

*Note.* Scale 1 = Strongly Disagree and 7 = Strongly Agree

All personality scales were acceptable with a Cronbach's alpha of .74 or higher (Table 6).

**Table 6. Personality Trait Scale Inter-Item Consistency Statistics**

	<i>a</i>	<i>M</i>	<i>SD</i>
Extraversion	.87	3.23	.71
Neuroticism	.83	2.87	.66
Openness	.74	3.60	.49
Agreeableness	.77	3.78	.51
Conscientiousness	.77	3.64	.52

*Note.* Scale 1 = Strongly Disagree and 5 = Strongly Agree

### Manipulation Checks

In addition to reliability tests, manipulation checks were also run on the data. Each frame type appeared to participants once at the beginning of the questionnaire and again before they were asked a series of questions about the manipulation. The first question asked participants if the same frame type appeared at the beginning of the questionnaire. In response to this question, most participants (94.4%,  $n = 396$ ) reported that the same frame appeared both times, 20 participants (5.1%) reported that a different frame appeared the second time, and two participants (0.50%) reported that no image appeared throughout the questionnaire. After manually checking the data, these 22 participants actually did see the same frame during both sections of the study.

Because the same frame appeared correctly both times, these responses were left in the data before analysis began.

The next series of manipulation check question items asked participants what they believe the ad was emphasizing. A one-way analysis of variance (ANOVA) was conducted to see what each treatment group believed the ad was emphasizing. Participants were randomly assigned to each treatment group with 102 participants in the health frame group, 91 participants in the quality frame group, 95 participants in the farmer frame group, and 97 participants assigned to the control group. Once again, participants were asked what they believed the ad was emphasizing. The response item “Local food is healthy” was measured first as the dependent variable. Results show a significant difference at the  $p < .05$  level among treatment groups:  $F(3, 381) = 173.65, p = .00$ . Using eta squared as a metric, results show a medium effect size of at .58. Post-hoc comparisons using the Turkey HSD test indicated that all treatment groups were statistically different from one another. Results show that participants assigned to the health frame had the highest mean score ( $M = 6.02, SD = 1.06$ ), followed by participants assigned to the quality frame ( $M = 5.42, SD = 1.33$ ), the farmer frame ( $M = 3.95, SD = 1.65$ ), and the control frame ( $M = 2.00, SD = 1.28$ ). Results from the first manipulation check reveal that the health frame was operating as intended. A significant number of participants believed that the health frame was emphasizing health attributes.

The second manipulation check question asked participants if they believed the ad was emphasizing quality of food. Results showed a significant difference among treatment groups once again:  $F(3, 381) = 205.94, p = .00$ . Results show a medium effect size of .62. Post-hoc comparisons using the Turkey HSD test further indicate that all treatment groups were statistically different from one another. Participants who received the quality frame had the

highest mean score of ( $M = 6.16$ ,  $SD = .90$ ), followed by the health frame group ( $M = 5.64$ ,  $SD = 1.21$ ), the farmer frame group ( $M = 3.99$ ,  $SD = 1.46$ ), and the control group ( $M = 2.11$ ,  $SD = 1.36$ ). Results from the second manipulation check reveal that the quality frame worked as intended. Most participants who received the quality frame believed it was emphasizing food quality.

The third manipulation check question asked participants if they believed the ad was emphasizing support of local farmers. Results show that each frame group was statistically different from one another:  $F(3, 382) = 148.59$ ,  $p = .00$ . A medium effect size existed at .54. A post-hoc comparison using the Turkey HSD showed that each group was significantly different from one another. The highest mean score was the farmer group ( $M = 6.49$ ,  $SD = .81$ ), followed by the quality group ( $M = 4.03$ ,  $SD = 1.66$ ), the health group ( $M = 3.38$ ,  $SD = 1.71$ ), and the control group ( $M = 2.22$ ,  $SD = 1.45$ ). Results from the third manipulation check show that the farmer frame operated as intended. The majority of participants who received the farmer frame believed the ad was emphasizing support of local farmers.

The fourth manipulation check item asked participants if the ad they received did not make them think about local food. Once again, ANOVA results were statistically significant:  $F(3, 384) = 148.10$ ,  $p = .00$ . The effect size, using eta squared, was medium at .54. Post-hoc comparisons show that the quality group was not statistically different from the health group or the farmer group, but was statistically different from the control group. The health group was not statistically different from farmer group, but was statistically different from the control group. All treatment groups were statistically different from the control group. The highest mean score was the control group ( $M = 6.38$ ,  $SD = 1.35$ ), followed by the quality group ( $M = 2.64$ ,  $SD = 1.68$ ), the health group ( $M = 2.62$ ,  $SD = 1.70$ ), and the farmer group ( $M = 2.45$ ,  $SD = 1.54$ ). Like

the three manipulations previously discussed, these findings show that the control frame was also operating as intended. Most participants who received the control frame indicated that the ad did not make them think about local food.

The remaining four manipulation check questions were included to ask participants how the ad, or frame, made them feel about local foods. The first item in this block of manipulation check questions asked participants if the ad made them feel that local food is healthy. Results show a significant difference among treatment groups:  $F(3, 383) = 34.37, p = .00$ . The effect size was small at .21. Post-hoc comparisons using the Turkey HSD test show that the quality group ( $M = 5.00, SD = 1.08$ ) was not statistically different from the health group ( $M = 5.22, SD = 1.11$ ). However, the farmer group ( $M = 4.26, SD = 1.23$ ) and the control group ( $M = 3.68, SD = 1.33$ ) were statistically different from all other groups. These findings are somewhat troublesome as the health frame and the quality frame unexpectedly evoked similar feelings among participants.

The second item in this block of questions asked participants if the ad made them feel that local food is high quality. Results show that treatment group was statistically significant:  $F(3, 383) = 39.06, p = .00$ . The effect size was small at .23. Post-hoc comparisons show that the quality group ( $M = 5.26, SD = 1.03$ ) was not statistically different from the health group ( $M = 5.02, SD = 1.09$ ). However, the farmer group ( $M = 4.24, SD = 1.19$ ) and the control group ( $M = 3.64, SD = 1.34$ ) were statistically different from all groups. Like the previous manipulation check item, these results further solidify the conceptual overlap between the health frame and the quality frame among participants.

The third question in this block asked participants if the ad made them feel that purchasing local food also helps family farms. Results show that treatment group is statistically

significant:  $F(3, 382) = 60.69, p = .00$ . The effect size was small at .32. Post-hoc comparisons show that the health group ( $M = 3.89, SD = 1.61$ ) was not statistically different from the control group ( $M = 3.79, SD = 1.44$ ). The farmer group ( $M = 6.17, SD = .91$ ) and the quality group ( $M = 4.58, SD = 1.49$ ) were statistically different from all groups. This manipulation check item reveals that the farmer frame evoked the intended feeling among participants.

The final question item in this block asked participants if the ad did not make them think about local food. Results show statistical significance among treatment groups:  $F(3, 385) = 134.09, p = .00$ . Results also showed a medium effect size of .51. Post-hoc comparisons reveal that a significant difference did not exist among the quality group ( $M = 2.77, SD = 1.65$ ), the health group ( $M = 3.06, SD = 1.70$ ), or the farmer group ( $M = 2.67, SD = 1.68$ ). However, the control group ( $M = 6.40, SD = 1.11$ ) was statistically different from all other groups. This result shows that the control frame worked as intended and did not make participants think about local foods in any manner.

In summary, results from the manipulation check show that each frame was strong enough for participants to identify the intended emphasis of the advertisement. However, results from the fifth and six manipulation check are concerning as an overlap between the health frame and the quality frame occurred regarding how those frames made participants feel. Although participants may have felt similarly after viewing the quality and health frame, but overall, the manipulation checks show that each frame type worked as intended.

## **Demographics**

More respondents were female (53.7%,  $n = 201$ ) than male (45.3%,  $n = 178$ ), and three respondents (0.8%) selected 'other' for gender.

The mean age of participants was 22 years old. The oldest participant was 75 years old and the youngest was 19 years old, with a standard deviation of 3.81.

In terms of food expenditure most of the respondents (34.5%,  $n = 135$ ) indicated that they spend between \$26 - \$50 at the dining halls or grocery stores each week. The distribution of food expenditures at dining halls and grocery stores was fairly spread out with 61 respondents (15.5%) indicating a grocery bill between \$1 - \$25, and 84 respondents (21.4%) indicating a grocery bill between \$51 - \$75 (Table 7).

**Table 7. Breakdown of participant weekly food expenditures at dining halls and grocery stores**

Dollar Amount	n	%
\$0	7	1.8%
\$1 - \$25	61	15.6%
\$26 - \$50	135	34.5%
\$51 - \$75	84	21.5%
\$76 - \$100	64	16.4%
\$101 - \$125	26	6.6%
\$126 or more	14	3.6%

Expenditures on convenience foods were much more clustered with the majority of respondents (56.0%,  $n = 220$ ) indicating they spend between \$1 - \$25 at convenience shops and/or restaurants (Table 8).



**Table 8. Breakdown of participant weekly food expenditures at convenience stores and/or restaurants**

Dollar Amount	n	%
\$0	27	6.9%
\$1 - \$25	220	56.3%
\$26 - \$50	91	23.3%
\$51 - \$75	33	8.4%
\$76 - \$100	13	3.3%
\$101 - \$125	4	1.0%
\$126 or more	3	0.8%

Most respondents (97.2%,  $n = 382$ ) do not currently live/work on a farm or ranch. Additionally, most respondents (75.3%,  $n = 296$ ) have never lived/worked on a farm or ranch. Of the 382 respondents who do not currently live/work on a farm or ranch, most (82.2%,  $n = 323$ ) also do not participate in their own production of food in any manner. Most participants (62.9%,  $n = 246$ ) indicated that they primarily pay for their food, while considerably fewer participants (36.9%,  $n = 145$ ) indicated that someone else primarily pays for their food, such as a parent or guardian.

**RQ 1: How do different message frames affect attitude, perceived behavioral control, subjective norms, and behavioral intent regarding local foods?**

As discussed in Chapter 3, a MANOVA was conducted to conclude if differently framed messages have a significant effect on attitudes, subjective norms, perceived behavioral control, and behavioral intent to purchase locally grown food. Preliminary checks were run to test normality, linearity, univariate and multivariate outliers, homogeneity of variance-covariance matrices, and multicollinearity. The distribution of attitude was moderately skewed, but multivariate tests are generally robust to this violation with group sizes of at least  $n = 25$  (Schmider, Ziegler, Danay, Beyer, & Bühner, 2010).

The results showed that a significant relationship does not exist between differently framed messages and attitudes, subjective norms, perceived behavioral control, or behavioral intent to purchase locally grown food,  $F(12, 1011) = 1.69, p = .064$ ; Wilks' Lambda = .50; partial  $\eta^2 = .02$ .

A more detailed discussion of the results of each dependent variable (attitude, subjective norms, perceived behavioral control, and behavioral intent) follows.

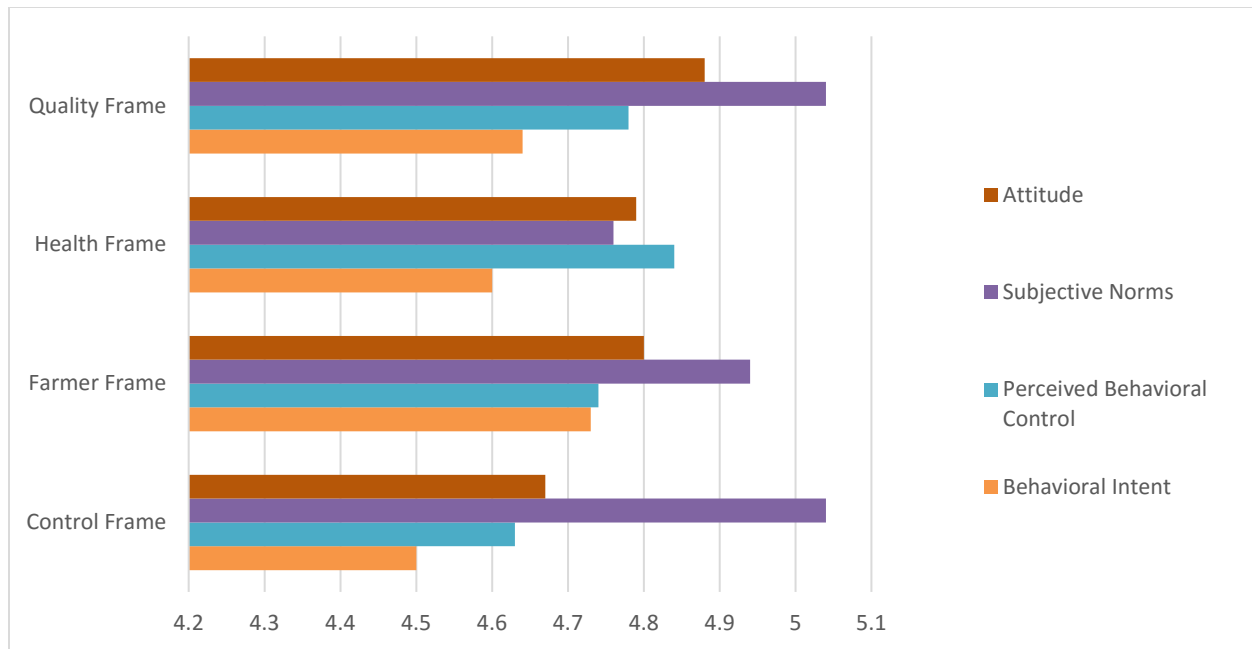
With attitude as the dependent variable, little variation existed among participants who were shown the quality frame ( $M = 4.88, SD = .75$ ), those who were shown the health frame ( $M = 4.79, SD = .76$ ), those who were shown the farmer frame ( $M = 4.80, SD = .66$ ), and participants who were shown the control frame ( $M = 4.67, SD = .91$ ).

Likewise, with subjective norms as the dependent variable, little variation existed among participants who were shown quality frame ( $M = 5.04, SD = 1.01$ ), the health frame ( $M = 4.75, SD = .88$ ), those who were shown the farmer frame ( $M = 4.94, SD = .81$ ), and the control frame ( $M = 5.04, SD = .99$ ).

Little variation in the quality frame ( $M = 4.78, SD = .71$ ), the health frame ( $M = 4.84, SD = .73$ ), the farmer frame ( $M = 4.74, SD = .73$ ), and the control frame ( $M = 4.63, SD = .71$ ) existed when perceived behavioral control was analyzed as the dependent variable.

Likewise, when behavioral intent was analyzed as the dependent variable, little variation existed among the quality frame ( $M = 4.63, SD = 1.15$ ), the health frame ( $M = 4.60, SD = 1.36$ ), the farmer frame ( $M = 4.72, SD = 1.23$ ), and the control frame ( $M = 4.50, SD = 1.21$ ).

Please reference Figure 3 for results of the one-way between-groups multivariate analysis.



*Note.* Each bar represents the mean score of attitude, subjective norms, perceived behavioral control, and behavioral intent on a 7-point scale.

**Figure 3. A bar graph showing the effect of frame type on attitude, subjective norms perceived behavioral control, and behavioral intent.**

A significant difference did not exist between frame type and any of the dependent variables under consideration. In general, subjective norms to purchase local foods were higher than attitudes, perceived behavioral control, and behavioral intent to purchase local foods with the exception of the health frame. Behavioral intent to purchase local foods was the lowest of the four dependent variables for each frame type.

## **RQ 2: How do different message frames affect attitude with personality traits as a moderating variable?**

To answer research question two and hypotheses one through four, separate ANCOVAs were conducted. The ANCOVAs were to compare the message effectiveness of each message frame in predicting attitude, subjective norms, perceived behavioral control, and behavioral intent to purchase locally grown food.

Message frames were the independent variable in the analysis. The dependent variables were attitude, subjective norms, perceived behavioral control, and behavioral intent. Covariates in the analysis included the personality types which included neuroticism, extraversion, openness, agreeableness, and conscientiousness.

Before the test was run, checks were conducted to ensure that the assumptions of analysis of covariance were not violated. Post-test results show that Leven's Test of Equality of Variances for attitude were at an acceptable value.

As previously mentioned, attitude had a moderately negative skew. However, ANCOVA is robust to slight variations in normality (Schmider et al., 2010). So, the data was analyzed without transformation.

Results show no significant difference among message frames, after controlling for personality traits as a moderating variable.  $F(3, 364) = 1.51, p = .21$ , partial  $\eta^2 = .01$  (Table 9).

**Hypothesis 1: Those who score high in openness will show positive attitudes toward local food after viewing all message frames highlighting local foods.**

A significant relationship existed between attitude and level of openness,  $F(1, 364) = 3.97, p = .05$ , partial  $\eta^2 = .01$ ; therefore, H2 is supported (Table 9). The effect size of the interaction between the personality trait openness and message frame was quite small.

**Table 9. ANCOVA Results and Descriptive Statistics for Attitude Toward Local Food by Frame Type and Personality Traits**

	Attitude Toward Local Food			
	Observed Mean	Adjusted Mean	SD	n
Health Frame	4.81	4.78	.74	99
Quality Frame	4.88	4.91	.75	89
Farmer Frame	4.79	4.79	.65	90
Control Frame	4.68	4.68	.91	95
Personality Trait	SS	df	MS	F
Extraversion	2.06	1	2.06	3.67
Neuroticism	5.28	1	5.27	9.40*
Openness	2.22	1	2.22	3.97*
Agreeableness	4.30	1	4.30	7.67*
Conscientiousness	0.12	1	0.12	0.38
Error	204.18	364	0.56	-

*Note.*  $R^2 = 0.77$ , Adj.  $R^2 = 0.57$

\* $p < .05$

Like the preceding MANOVA analysis, a significant difference in frame type and attitudes toward local foods did not exist, even after controlling for personality traits as a moderating variable. Although these results are not significant, the quality frame seemed to influence the highest mean score toward local food, followed by the farmer frame, the health frame and the control frame.

In the same ANCOVA model, the interaction of message frames and personality traits were taken into account to answer hypotheses one through four.

**Hypothesis 2: Those who score high in neuroticism will show the least attitudinal change from message frames highlighting health benefits of local foods.**

A significant relationship did not exist between frame type and level of neuroticism,  $F(3, 327) = 1.58$ ,  $p = .19$ , partial  $\eta^2 = .01$ ; therefore, H1 is not supported (Table 10). Moreover, the effect size was small.

**Hypothesis 3: Those who score high in agreeableness will show positive attitudes toward local foods after viewing the message frame highlighting support of local farmers.**

A significant relationship did exist between frame type and level of agreeableness,  $F(4, 352) = 2.42, p = .05$ , partial  $\eta^2 = .03$ . However, a significant difference did not exist among the health group ( $M = 4.81, SD = .74$ ), the quality group ( $M = 4.88, SD = .75$ ), the farmer group ( $M = 4.79, SD = .65$ ), and the control group ( $M = 4.68, SD = .91$ ); therefore, H3 is not supported (Table 10). The effect size of the interaction between the personality trait agreeableness and frame type was also quite small.

**Hypothesis 4: Those who score high in conscientiousness will show positive attitudes toward local foods after viewing the message frame highlighting health benefits or support of local farmers.**

A significant relationship did not exist between frame type and level of conscientiousness,  $F(3, 359) = .10, p = .39$ , partial  $\eta^2 = .01$ ; therefore, H4 is not supported (Table 10). The effect size of the personality trait conscientiousness and frame type was quite small as well.

**Table 10. Results for Interaction Effect of Message Frame and Personality Trait**

Attitude	<i>df</i>	<i>F</i>	$\eta^2$	<i>p</i>
Group*Extraversion	4	1.43	.02	.23
Group*Neuroticism	4	3.35	.04	.01
Group*Openness	4	1.42	.02	.23
Group*Agreeableness	4	2.42	.03	.05
Group*Conscientiousness	4	1.28	.01	.28

*Note.* This table shows the results for the one-way between-group analysis of covariance (ANCOVA) to show the interaction effect of frame type and personality trait. The interaction is marked by the asterisk \*. For this analysis, frame types were collapsed into a single dummy variable “group.” Significance was assumed at the  $p < .05$  level.

Although the interaction between group and neuroticism as well as group and agreeableness was significant, our expected relationships were not supported. Once again, these expectations were that those who score high in neuroticism would show the least attitudinal change after viewing the health frame, those who score high in agreeableness would show the greatest attitudinal change after viewing the support local farmers frame, and those who score high in conscientiousness would show positive attitudinal change after viewing the health frame and the support local farmers frame.

**RQ 3: How do different message frames affect subjective norms with personality traits as a moderating variable?**

Post-test results show that Leven's Test of Equality of Variances for subjective norms were at an acceptable value.

Results show no significant difference among message frames, after controlling for personality traits as a moderating variable,  $F(3, 365) = 1.65, p = .18$ , partial  $\eta^2 = .01$  (Table 11). The effect size of treatment group on subjective norms was small.

**Table 11. ANCOVA Results and Descriptive Statistics for Subjective Norms Toward Local Food by Frame Type and Personality Traits**

		Subjective Norms Toward Local Food			
		Observed Mean	Adjusted Mean	SD	n
Health Frame		4.79	4.78	0.84	99
Quality Frame		5.01	5.02	1.00	89
Farmer Frame		4.92	4.92	0.81	92
Control Frame		5.02	5.02	0.98	94
Personality Trait	SS	df	MS	F	
Extraversion	0.39	1	0.39	0.49	
Neuroticism	1.60	1	1.60	2.03	
Openness	7.63	1	7.63	9.67*	
Agreeableness	6.57	1	6.57	8.32*	
Conscientiousness	2.18	1	2.18	2.77	
Error	288.12	365	0.79	-	

Note.  $R^2 = 0.74$ , Adj.  $R^2 = 0.54$

\* $p < .05$

After controlling for personality traits as a moderating variable, frame type did not have a significant impact on subjective norms. Interestingly, the mean scores for the quality frame and the control frame were the same, which was followed by the farmer frame and the health frame. As previously noted, these differences are not significant.

**RQ 4: How do different messages frames affect perceived behavioral control with personality traits as a moderating variable?**

Post-test results show that Levene's Test of Equality of Variances for perceived behavioral control were not violated. Results show no significant difference among message frames, after controlling for personality traits as a moderating variable,  $F(3, 266) = 2.24, p = .08$ , partial  $\eta^2 = .02$  (Table 12). The effect size was small.

**Table 12. ANCOVA Results and Descriptive Statistics for Perceived Behavioral Control Toward Local Food by Frame Type and Personality Traits**

		Perceived Behavioral Control Toward Local Food			
		Observed Mean	Adjusted Mean	SD	n
Health Frame		4.85	4.84	0.73	99
Quality Frame		4.80	4.80	0.71	89
Farmer Frame		4.75	4.76	0.72	92
Control Frame		4.60	4.60	0.70	95
Personality Trait	SS	df	MS	F	
Extraversion	0.27	1	0.27	0.54	
Neuroticism	7.68 E <sup>-5</sup>	1	7.68 E <sup>-5</sup>	0.00	
Openness	5.33	1	5.33	10.61*	
Agreeableness	0.66	1	0.66	1.31	
Conscientiousness	0.23	1	0.23	0.46	
Error	183.94	366	0.50	-	

Note.  $R^2 = .053$ , Adj.  $R^2 = .032$

\* $p < .05$

Once again, with each personality trait as a moderating variable, perceived behavioral control to purchase local foods was not significantly different based on each frame type. The health frame related to the highest mean score for perceived behavioral control, followed by the



quality frame, the farmer frame, and the control frame. As previously noted, these differences are not significant.

**RQ 5: How do different message frames affect behavioral intent with personality traits as a moderating variable?**

Post-test results show that Levene's Test of Equality of Variances for behavioral intent were at an acceptable value.

Results show no significant difference among message frames, after controlling for personality traits as a moderating variable,  $F(3, 366) = 0.17, p = .91$ , partial  $\eta^2 = .00$  (Table 13). The effect size was small.

**Table 13. ANCOVA Results and Descriptive Statistics for Behavioral Intent to Purchase Local Food by Frame Type and Personality Traits**

		Behavioral Intent Toward Local Food			
		Observed Mean	Adjusted Mean	<i>SD</i>	<i>n</i>
Health Frame		4.61	4.60	1.34	99
Quality Frame		4.62	4.62	1.16	89
Farmer Frame		4.64	4.65	1.28	92
Control Frame		4.53	4.53	1.20	95
Personality Trait	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	
Extraversion	2.45	1	2.45	1.63	
Neuroticism	0.50	1	0.50	0.03	
Openness	13.31	1	13.31	8.86*	
Agreeableness	3.10	1	3.10	2.06	
Conscientiousness	0.39	1	0.39	0.26	
Error	549.88	366	1.50	-	

Note.  $R^2 = .051$ , Adj.  $R^2 = .030$

\* $p < .05$

With personality traits as a moderating variable, frame type did not produce a significant difference in behavioral intent to purchase local foods. Although the results are not significant, the farmer frame created the highest mean score for behavioral intent to purchase local foods, followed by quality frame, the health frame, and the control frame.

## Exploratory Analysis

After the main analysis was conducted, a separate ANCOVA was used to analyze the effect of personality traits, along with several other covariates, on attitude, subjective norms, perceived behavioral control, and behavioral intent to purchase local foods. Once again, frame type was considered the independent variable.

Under the full ANCOVA model, the only significant predictor of attitudes toward local foods was gender,  $F(2, 292) = 4.42, p = .01$ , partial  $\eta^2 = .03$  (Table 14). Although gender was a significant predictor of attitude toward local food, the effect size was rather small. All other variables including, personality traits, weekly spending habits for food, age, primary income for food, and background/experience with food production were not significant in predicting attitudes about local foods (Table 14).

**Table 14. ANCOVA Results with Attitude as the Dependent Variable**

Attitude	<i>df</i>	<i>F</i>	$\eta^2$	<i>p</i>
Frame Group	3	0.45	.01	.72
Extraversion	1	0.03	.00	.85
Neuroticism	1	0.84	.00	.36
Openness	1	2.27	.01	.12
Agreeableness	1	1.73	.01	.19
Conscientiousness	1	1.27	.00	.26
<i>Gender</i>	2	2.32	.03	.01
Age	1	1.46	.01	.23
Primary Income for Food	1	0.37	.00	.54
Current Ranching/Farming	0	-	.00	-
Past Ranching/Farming	1	0.58	.00	.45
Other Current Food Production	1	0.40	.00	.53
Spending Habits – Grocery Store	1	2.08	.01	.15
<i>Spending Habits – Convenience Store</i>	1	3.24	.01	.07

*Note.* This table shows the results for the one-way between-group analysis of covariance (ANCOVA) with message frame as the independent variable and attitude as the dependent variable. Significance was assumed at the  $p < .05$  level.

Gender was the only significant predictor of attitude toward local foods. Under the fully ANCOVA model, personality traits, age, primary income for food, experience with food production, and weekly spending habits on food were not significant in predicting attitude toward local food.

The full ANCOVA model was run once again with subjective norms as the dependent variable. The personality type openness  $F(1, 293) = 10.85$ ,  $p = .00$ ,  $\eta^2 = .04$  was the only significant predictor of subjective norms toward local foods. However, the effect size was small. All other variables in the model were not statistically significant (Table 15).

**Table 15. ANCOVA Results with Subjective Norms as the Dependent Variable**

Attitude	<i>df</i>	<i>F</i>	$\eta^2$	<i>p</i>
Frame Group	3	1.49	.02	.22
Extraversion	1	0.37	.00	.55
Neuroticism	1	1.35	.01	.25
<i>Openness</i>	<i>1</i>	<i>10.85</i>	<i>.04</i>	<i>.00</i>
Agreeableness	1	3.01	.01	.08
Conscientiousness	1	0.84	.00	.36
Gender	2	0.74	.01	.48
Age	1	0.37	.00	.54
Primary Income for Food	1	0.02	.00	.89
Current				
Ranching/Farming	0	-	.00	-
Past Ranching/Farming	1	0.35	.00	.56
Other Current Food				
Production	1	0.83	.00	.36
Spending Habits –				
Grocery Store	1	0.00	.00	.97
Spending Habits –				
Convenience Store	1	0.99	.00	.32

*Note.* This table shows the results for the one-way between-group analysis of covariance (ANCOVA) with message frame as the independent variable and subjective norms as the dependent variable. Significance was assumed at the  $p < .05$  level.

As previously noted, the personality type openness was the only significant predictor of subjective norms under the full ANCOVA model. The other four personality types along with gender, age, primary income for food, personal experience with food production, and weekly spending habits on food were not significant in predicting subjective norms toward local food.

Again, the full ANCOVA model was run with perceived behavioral control as the dependent variable. The personality trait openness was also a significant predictor of perceived behavioral control in relation to local foods with  $F(1, 294) = 10.96$ ,  $p = .00$ , partial  $\eta^2 = .04$ .

Although the result is significant, the effect size is rather small.

In addition to the personality trait openness, current production of food was a significant predictor of perceived behavioral control in relation to local foods with  $F(1, 294) = 6.373$ ,  $p = .01$ , partial  $\eta^2 = .02$ . Once again, the effect size was small.

All other covariates in the model did not have a significant impact on perceived behavioral control in relation to local foods (Table 16).

**Table 16. ANCOVA Results with Perceived Behavioral Control as the Dependent Variable**

Attitude	<i>df</i>	<i>F</i>	$\eta^2$	<i>p</i>
<i>Frame Group</i>	3	2.98	.03	.03
Extraversion	1	0.29	.00	.59
Neuroticism	1	0.00	.00	.99
<i>Openness</i>	1	10.96	.04	.00
Agreeableness	1	2.67	.01	.10
Conscientiousness	1	0.02	.00	.88
Gender	2	2.68	.02	.07
Age	1	0.46	.00	.50
Primary Income for Food	1	3.15	.01	.08
<i>Current</i>	0	-	-	.00
<i>Ranching/Farming</i>				
Past Ranching/Farming	1	0.64	.00	.43
<i>Other Current Food</i>	1	3.06	.02	.01
<i>Production</i>				
Spending Habits – Grocery Store	1	0.93	.00	.34
Spending Habits – Convenience Store	1	0.04	.00	.78

*Note.* This table shows the results for the one-way between-group analysis of covariance (ANCOVA) with message frame as the independent variable and perceived behavioral control as the dependent variable. Significance was assumed at the  $p < .05$  level.

Under the full ANCOVA model, openness and experience with food production were significant predictors of perceived behavioral control to purchase local foods. The significant variables that dealt with experience in food production were current farming/ranching status and other current food production. Past farming/ranching status was not significant. The four other

personality traits along with gender, age, primary income for food, and weekly spending habits on food were not significant predictors of perceived behavioral control to purchase local foods.

When behavioral intent was analyzed as the dependent variable in the full ANCOVA model, the personality trait openness showed statistical significance,  $F(1, 294) = 6.97, p = .01$ , partial  $\eta^2 = .02$ . All other confounding variables were not significant predictors of behavioral intent to purchase locally grown food (See Table 17).

**Table 17. ANCOVA Results with Behavioral Intent as the Dependent Variable**

Behavioral Intent	<i>df</i>	<i>F</i>	$\eta^2$	<i>p</i>
Frame Group	3	0.80	.01	.50
Extraversion	1	1.22	.00	.27
Neuroticism	1	0.12	.00	.74
<i>Openness</i>	<i>1</i>	<i>6.97</i>	<i>.02</i>	<i>.01</i>
Agreeableness	1	2.81	.01	.10
Conscientiousness	1	0.00	.00	.95
Gender	2	1.63	.01	.10
Age	1	0.83	.00	.36
Primary Income for Food	1	1.46	.01	.23
Current	0	-	.00	-
Ranching/Farming				
Past Ranching/Farming	1	0.32	.00	.64
Other Current Food	1	0.61	.00	.52
Production				
Spending Habits – Grocery Store	1	0.83	.00	.37
Spending Habits – Convenience Store	1	0.88	.00	.44

*Note.* This table shows the results for the one-way between-group analysis of covariance (ANCOVA) with message frame as the independent variable and behavioral intent as the dependent variable. Significance was assumed at the  $p < .05$  level.

Under the full ANCOVA model, openness was the only significant predictor of behavioral intent to purchase local foods. The other four personality types, gender, age, primary income for food, experience with food production, and weekly spending habits on food were not significant in predicting behavioral intent to purchase local food.

## CHAPTER 5. DISCUSSION

### Results

Results show that the frames around quality, health, and support of local farmers were all non-significant at influencing each element of the theory of planned behavior model in the local food context. These findings run counter to recommendations from past research. The Food Processing Center (2001), Brown (2003), and Schneider and Francis (2005) all suggest highlighting quality attributes in local food marketing is influential to consumers; Gorham et al. (2015) suggests highlighting the healthfulness of local foods. Similarly, Kezis et al. (1998) and Toler et al. (2009) recommend highlighting a personal farmer-consumer relationship, while Nurse Rainbolt and colleagues (2012) suggest that farmers receiving a fair wage is important to consumers.

The discrepancy between recommendations from past research on local foods and the results in the current study might be explained by the brief message frames used as manipulations. Each participant only had a single exposure to the visual elements of the frame, and the text was akin to a short slogan. Brown's (2003) suggestions go beyond highlighting quality attributes around local food. She also elaborates that quality attributes should be explained to consumers as the result of an inherently short supply chain. Likewise, Nurse Rainbolt and colleagues (2012) describe the altruistic motivators behind local food purchases in terms of consumers feeling that their purchase truly makes a positive impact. Perhaps these psychological factors were not evoked strongly enough. The results of our study are similar to Costanigro, Deselnicu, and McFadden (2015) who suggest that an understanding of outcomes related to food labeling are important in increasing consumer willingness to pay for food

products. The work from Costanigro and colleagues is especially relevant to the current study as they sought to find what type of food labels increased consumer willingness to pay for products that are associated with greater corporate social responsibility. As previously mentioned, local food messaging oftentimes highlights elements that might be associated with corporate social responsibility. For example Hinrichs and Allen (2008) suggest that most local food messages are based on environmental sustainability. Costanigro et al. (2015) propose that well-articulated messages with clear outcomes are important to positively invoke perceptions of corporate social responsibility among consumers to increase willingness to pay. In connection to the current study, those involved in local food marketing might be advised to clearly signal how local foods benefit the environment and community more specifically than making sweeping, brief claims.

When considering conventional shopping environments like grocery stores, consumers are typically able to compare locally-sourced (and marketed) foods to those that are not. Part of the explanation of our findings could also stem from presenting the local food messaging without direct comparison to non-local food options. Previous research has suggested when consumers are comparing similar food products, on-package marketing (i.e., labels) for credence attributes (e.g., local, cage-free, sustainable) may function by decreasing consumers' positive attitudes toward the product without credence attributes rather than strongly affecting evaluations of the local product (Abrams, 2015). While more research still needs to be done to determine how consumers process and are effected by messages of comparable food products, marketers might see different results from more simplistic local food messages as used in this study when they are placed near non-local products.

Another possible explanation of the non-significant results could be a general saturation of local food campaigns, even among grocery giants. Wal-Mart has begun to market local foods



(Adams & Salois, 2010), and in February of 2015 King Soopers was reported as the largest purchaser of local produce in Colorado (Progress Colorado, 2015). In addition to retail food companies, processors like Frito-Lay began to market products as locally grown (Adams & Salios, 2010). Certainly, the opportunity for farmers to sell their product in grocery stores could offer an economic benefit to local farmers (Aldous, 2014). However, this could be at the cost of diminished marketing power in local food campaigns by larger companies and retailers (Adams & Salios, 2010). This phenomenon may have already occurred in the organic food realm. Adams and Salios explain that consumers originally turned to organic foods in support of an anti-industrialized food system. However, as organic foods became more industrialized in the late 1990s, some consumers began to support local foods instead. Literature from Rikkonen, Kotro, Koistinen, Penttilä, and Kauriinoja (2013) further suggests that consumers are more likely to trust communication from small farms than large businesses. Because local foods have become more heavily industrialized (Adams & Salios, 2010; Progress Colorado, 2015), the local food movement may have followed suit with the organic sector and lost some marketing power among consumers.

The second part of this study dealt with personality traits as a potential moderating variable in the relationship between frame type and each element of the theory of planned behavior. Results suggest that personality traits do not influence the relationship between frame type and attitude, subjective norms, perceived behavioral control, or behavioral intent to purchase local foods. This finding is counter to previous scholarship from Chen (2007) who found a significant relationship between personality traits and attitude toward organic food. One possible explanation for this difference is that Chen (2007) specifically evaluated the food-

related personality traits of food neophobia and food involvement as a moderating factor, rather than the factor-five model which was used in this study.

Additionally, results suggest that an interaction effect between frame type and personality traits does not exist in predicting attitude change in the local food context. This finding is contrasted with Gamliel et al. (2014), who suggests that personality traits play a moderating role in the effects of attribute framing. Gamliel and colleagues found those who score high on agreeableness and conscientiousness are more susceptible to attribute framing about social justice issues. However, the current research suggests that personality type does not play a significant role in motivating participants to purchase local foods based on social justice issues, such as support of local farmers. One explanation for this difference could be that Gamliel et al. (2014) conceptualized attribute frames as similar to Levin and colleagues' (1998) conceptualization of attribute framing in terms of equivalency frames, while the current study conceptualized attribute framing as highlighting certain attributes and excluding others as suggested by Druckman (2001). From this perspective, presenting participants with equivalency frames as described by Leven et al. (1998) may have yielded a different result. A more surface level explanation for the non-significant results in the current study could simply be that participants did not view support of local farmers as a social justice issue.

Our predictions that those who score high in conscientiousness would show more positive attitudes toward local foods after viewing the health frame, and those who score high in neuroticism would show the least attitude change after viewing the health frame were also incorrect. This prediction was based on literature which suggests those who are more conscientious are generally more concerned with their health, while those who are neurotic are generally less concerned with their health (Chang et al., 2012; De Bruijn, et al., 2009; Rentfrow,

2008). In general, our findings indicate that an interaction effect between personality and frame type does not seem to be present.

Although interaction effects were not present, our prediction that the personality trait openness would be a significant predictor of attitude toward local food, regardless of frame type, was supported. To explain this finding, we rely on past scholarship which shows that openness is associated with a general willingness to try new experiences (Digman, 1990; Rentfrow et al., 2008). Our findings would suggest that those who score high in openness generally hold more favorable attitudes toward local foods.

### **Theoretical Implications**

Our results show that each manipulation functioned as intended, evidenced by the significant result of the manipulation checks. However, participants did not exhibit any change in attitude, subjective norms, perceived behavioral control, or behavioral intent to purchase local foods using the theory of planned behavior model. To help explain this result, we compared findings with outside literature from attitude-change models.

Azjen's (1991) theory of planned behavior suggests that each element within the model, attitude, subjective norms, and perceived behavioral control, can be discretely measured as acting independently of one another to predict behavioral intent. For our purposes, the construct attitude will be of primary interest as it relates to other attitude-change models. Under the theory of planned behavior, attitude is conceptualized as a summation of beliefs toward the act or object in question (Azjen). Chong and Druckman (2007) agree that attitudes are multidimensional. However, other attitude-change models take into account additional individual differences on behalf of the message receiver. These individual differences include elements such as pre-existing attitudes, attitude strength, attitude valence, and elaboration (O'Keefe, 2008; Petty &

Cacioppo, 1986). Such individual differences could be vitally important in understanding why each frame had little to no impact within the participant group.

We suggest that when a pre-existing attitude is present, attitudes can be more difficult to change, even when the manipulation appears to be working correctly. A more in-depth explanation comes from Petty and Cacioppo (1986), who postulate that existing knowledge structures are incredibly important considerations in predicting attitude change, and that attitudes tend to be polarized in their initial direction. According to Smith (2012) attitude formation is much easier to achieve than attitude change. However, once the audience has received information about an object, their attitudes can be difficult to influence (Smith). This supports Petty and Cacioppo's (1986) claim that once attitudes are formed about a given object, they are difficult to change both in terms of strength and direction. Petty and Cacioppo further suggest that if a pre-existing attitude is present, messages should present the audience with content that allows them to carefully process the information rather than simple cues. Given the recent growth in the local food movement as discussed by Low et al. (2015), one might presume that participants were already well-aware of local foods and had formed an attitude, positive or negative, toward that sector. If participants had already received information about local foods, which is likely the case, the message frame manipulations used in the current study may not have been strong enough to change participants' initial attitude as they only incorporated simple cues rather than in-depth content.

O'Keefe (2008) describes attitude change as occurring along a continuum between the central and peripheral processing system. Individuals use the central processing system when they are more carefully interpreting a message, or have a high elaboration of the message (Petty, Brinol, & Priester, 2009). The central processing system creates long-lasting attitudes which can

be especially resistant to change (Petty et al.). Individuals who are more likely to use the central processing system are those who have background knowledge of the issue or have a high need for cognition (Petty et al., 2009; Petty & Cacioppo, 1986). Individuals who use their central processing system are more likely to scrutinize the message (Petty & Cacioppo). When the central processing system is at play, message strength is important to consider. Strong messages instruct participants to think carefully about the message, and for attitude change to occur, current messages about the topic must be stronger than previous messages (Petty & Cacioppo).

In contrast, scholars suggest that individuals use the peripheral processing system when they are thinking less carefully about the message being presented due to a lack of background information or an inherently low need for cognition (O’Keefe, 2008; Petty & Cacioppo, 1986). According to O’Keefe (2008) three simple heuristics work well when the peripheral processing system is employed. These heuristic cues include the credibility heuristic, the linking for the communicator heuristic, and the consensus heuristic (O’Keefe). Under this assumption, those receiving the message are likely to interpret the message with less scrutiny if the source seems credible, the source is well-liked, or the majority of other individuals seem to be reacting the same way to the message.

With information about the processing systems and communication factors pertinent in each in mind, several theoretical linkages might explain the results of the current study. If the participant group had already been exposed to messages about local foods, creating attitude change among those individuals would be harder to achieve. Scholars such as O’Keefe (2008), Smith (2012), and Petty and Cacioppo (1986) might suggest using higher quality messages that generate greater elaboration in this circumstance. Higher quality messages are messages that provoke the audience to carefully think about the issue under consideration, in this case the

potential benefits of local foods. According to Petty and Cacioppo (1986), under high elaboration messages should be strong enough to make the audience think more carefully about the object, i.e. local foods, than the thought process generated by previous messages. Message quality is especially important in this circumstance, because attitudes that are formed when the audience is carefully considering the message are more stable than when the audience is not carefully considering the message (Petty et al., 2009). If pre-existing attitudes are present and the ultimate goal is creating stable and positive attitudes toward local foods, message quality is clearly important as it invokes the audience to more carefully consider and process the message. Findings from research on consumer preference might better explain this phenomenon. Costanigro, Kroll, Thilmany, and Bunning (2014) propose that vague messages only push consumers toward their pre-existing biases. These pre-existing biases might be akin to pre-existing attitudes as described by Petty and Cacioppo (1986). Therefore, our suggestion that simple cues are not impactful at influencing attitude change seems to be in line with literature from both the field of communications and agricultural economics. Drawing on suggestions from Costanigro et al. (2014) and Petty and Cacioppo (1986), strong messages might be more effective at creating attitude change. This is especially true if participants used their central processing system, rather than their peripheral processing system.

However, even if participants did use their peripheral processing system to evaluate the message, the simple heuristic cues described by O'Keefe (2008) were not employed. The target audience was not given information to show source credibility, while appreciation for the communicator and the consensus heuristic were not included in the study design. Instead, participants were given a simple message frame without heuristic cues or high message strength.

The theory of planned behavior is certainly a well-respected model in predicting behavioral intent (Ajzen, 1991), but findings from the current study suggest that the theory of planned behavior might be more robust if it accounted for pre-existing attitudes as described by Petty and Cacioppo (1986). The addition of more discrete attitude measures in terms of valence and strength would also be advantageous to the model as well as the consideration of message strength and heuristic cues.

In terms of personality trait research, the expected theoretical relationships between trait and frame type were not supported in the main analysis. As previously discussed, our findings contradict Gamliel et al. (2014) who suggests that those who score high in agreeableness and conscientiousness are more likely to be swayed by frames on social justice issues. Our results also revealed that the trait openness is significant in predicting attitude, subjective norms, perceived behavioral control, and behavioral intent to purchase local foods. This finding might be explained by a general curiosity among those who score high in openness (Rentfrow et al., 2008). Digman (1990) also describes the personality trait openness as being related to flexibility of ideas and being open to new experiences. From this perspective, those who are inherently open-minded will probably be more likely attend a farmers market and purchase local foods. Furthermore, if personality types tend to cluster together, as suggested by Rentfrow and colleagues (2008), then one might also presume that those who score high in openness would also choose to associate with other open-minded individuals. From this standpoint, the significant relationship between the openness trait and subjective norms is not surprising. Perhaps those who score high in openness feel pressure from important others to partake in non-conventional activities, such as purchasing local foods.

## **Practical Implications**

Lamine (2015) suggests that local food campaigns operate on one of two paradigms; the first paradigm focuses on agriculture's interaction with the environment, while the second focuses on the social aspects of local foods. The second paradigm might be in line with previous scholars who recognize that consumers value farmers receiving a fair wage (Nurse Rainbolt et al., 2012) and the farmer-consumer connection (Kezis et al., 1998; Toler et al., 2009). Results from the current study suggest that simple message frames are not strong enough to evoke the social dimensions that are vitally important to the local food movement.

The main analysis showed that each frame type is not significantly different from one another in producing positive behavioral intent to purchase locally grown foods. Although food quality, healthfulness to the consumer, and support of local farmers might all be motivating factors for consumers to purchase local foods (Kezis et al., 1998; Food Processing Center, 2001; Brown, 2003; Zepeda & Leviten-Reid, 2004; Schneider & Francis, 2005; Toler et al., 2009; Nurse Rainbolt et al., 2012), these attributes do not seem to make a significant difference in the marketing of local foods if simple cues are used. This knowledge is useful to local food marketers who are considering their messaging strategy. When brief advertisements are used, messaging strategies around quality of food, health benefits to consumers, and support of local farmers does not appear to have a significant impact on consumers. We are not sure which frame type might be more affective in advertisements that incorporate more detailed text and/or repeated message treatment.

We further suggest that local food marketers better articulate the benefits of local foods in their messaging strategy. Our manipulations worked as intended, yet were not successful in producing attitude change. Perhaps this unique finding shows that consumers are becoming



increasingly savvy when it comes to local food advertisements and probably have developed an attitude, positive or negative, toward the local food movement. Our results are consistent with Costanigro et al. (2015) who also suggests that an understanding of outcomes associated with food purchases are important among consumers – rather than simple message cues. Similar results from Costanigro et al. (2014) on the labelling of organic and locally grown apples further corroborates that well-articulated messages are important. In the context of the current study, one might conclude that consumers need more contextual information to understand why local foods are high quality, healthy, and support local farmers. Heuristic cues are simply not strong enough to influence actual behavioral intent to purchase local foods. However, marketers may see different results in settings in which local foods are marketed next to or near non-local foods. In this comparison setting, previous research has suggested local food labels may impact consumer attitudes toward the non-local foods negatively (Abrams, 2015). Whether that actually results in purchase, however, is a more complicated matter based on value and other extrinsic qualities.

A construct overlap on behalf of consumers is also noteworthy to local food marketers. Results from the manipulation check show that participants did not show a significant difference in how the health frame and the quality frame made them feel about local foods. Perhaps messages around food quality and healthfulness are one the same (i.e., inextricable features) for consumers.

Exploratory analysis shows that females are significantly more likely to purchase locally grown food than males. Those involved with local food marketing campaigns should direct their attention to females. This finding only validates previous scholarship (Brown, 2003; Kezis, 1998).

Additionally, the exploratory analysis revealed that those who currently live/work on a farm/ranch or participate in their own food production in some other way show significantly greater perceived behavioral control to purchase locally grown foods. This result is a logical finding as those who participate in some type of food production should have more confidence in understanding food production practices. Interestingly enough, current food production was not significantly related to attitudes toward local food. This result is not congruent with results from Brown (2003), who suggests that a farm connection does play a role in individual support of local foods.

As previously mentioned, those who score high in openness are more likely to have favorable attitudes, subjective norms, perceived behavioral control, and behavioral intent to purchase local foods. This finding could be useful to local food marketers because personality traits tend to exist in clusters. According to Rentfrow et al. (2008) the region with the densest openness cluster is Washington DC. This is followed by the state of New York, Oregon, Massachusetts, and Washington State (Rentfrow et al.). Colorado ranks 7<sup>th</sup> in terms of openness (Rentfrow et al.). Results from the current study show that local food marketers should focus their attention on states that have particularly dense clusters of the openness trait. However, this finding should be taken with caution as results have a moderate to small effect size.

### **Limitations**

Participants in the current study were college students at a university in Northern Colorado. These results should not be generalized beyond the scope of the current sample. However, findings are still useful as personality traits tend to be relatively consistent over time (Roberts, Wood, & Caspi, 2008). Although traits may systematically develop to fit one's environment, personalities seem become more clear in late adolescence and then remain stable

(Robert et al.). Cranfield et al. (2012) also suggest that attitudes are more important than socioeconomic factors in predicting local food purchasing habits, while demographic variables do not seem to be important in predicting local food purchases (Brown, 2003). The sample size does not represent the population as a whole, but findings on personality traits and attitudes toward local food could be especially helpful moving forward.

Although each frame was perceived correctly, the frames did not impact the measures in this study. This could be because the theoretical model on which this study and its measures were based upon did not take into account pre-existing attitudes or message strength and quality. Likewise, the theoretical model did not include involvement or cognition on behalf of the participant group. With the increasing popularity of local foods (Low et al., 2015), participants had most likely already been exposed to some type of messaging around local foods and had formed an attitude toward local foods. Attitude change can be difficult to accomplish when pre-existing attitudes are present (Petty et al., 2009). In this case, strong messages that encourage participants to carefully process the logic of the message are more likely to be persuasive if the target audience has already been exposed to a message about the object than simple messages with only heuristic cues (Petty & Cacioppo, 1986). Stronger messages would include deeper, more meaningful text that is grounded in sound arguments for local foods. Because our frame manipulations only used heuristic cues, message strength seemed to be a limiting factor as participants were not encouraged to carefully process the potential benefits of local foods. Deeper messages that require more thoughtful elaboration may have been more successful in producing significant attitude change. Although attitudes are described as persistent over time in the theory of planned behavior model (Ajzen, 2005), pre-existing attitudes are not measured in

the model nor are message quality and strength considered. This proved to be a limiting factor in the current study.

Additionally, this study's focus was mainly on attitude change in relation to behavioral intent. Another limiting factor was that frame manipulations were not designed to specifically manipulate subjective norms or perceived behavioral control. Therefore, findings related to subjective norms and perceived behavioral control should be taken with caution.

### **Areas for Future Research**

We recommend conducting a similar study using Petty and Cacioppo's (1986) elaboration likelihood model of persuasion. Such a model would alleviate several of the flaws in the current study because the model would account for pre-existing knowledge structures, attitude valence and strength, and message quality.

If individuals are likely to have some existing knowledge structure on local foods, we further recommend that messages are carefully constructed and evoke higher message elaboration on behalf of study participants. For example, messages should describe why local foods are high quality. Like Brown (2003), we recommend that future researchers create manipulation material with contextual information as to why local foods might be of higher quality. In direct comparison to conventional foods, this contextual information could include a shorter distance traveled from farm to plate. Likewise, the health frame should be more carefully constructed. For example, message strength could be increased by providing consumers with findings from Freedmen et al. (2013) and Jilcott Pitts et al. (2013) who suggest that those who frequently purchase locally grown food are more likely to consume nutrient-dense foods, which are related to numerous long-term health benefits (Kadey, 2015). In future studies, the support of local farmers frame could be made stronger by incorporating findings from Lyson and Green

(1999), Brown (2003), Schneider and Francis (2005), and Martinez (2010), who all suggest that local foods creates community-level benefits and increases farm income.

In terms of trait research, we suggest a comprehensive study on the relationship between the personality trait of openness and local foods sales. Because openness showed a significant positive relationship to local foods in each element of the theory of planned behavior model, future research in this realm could be especially useful to local food marketers. If other researchers agree that a significant relationship exists between openness and behavioral intent to purchase local foods, those involved with local food sales might have a better understanding of an optimal target market.

Additionally, future research should be conducted on degrees of separation from food production and attitudes toward local foods. Brown (2003) indicates that those who grew up on a farm or ranch are more likely to support the local food movement. However, as previously noted, Brown's findings are not supported in the current study. This could be because the sample size is drastically different. Brown (2003) conducted her study in southeast Missouri and had a participant group with a more agrarian family history. Slightly more participants indicated that they or their parents were raised on a farm. In contrast, less than 25% of participants in the current study indicated that they have farm/ranch experience. Moving forward, data from a more diverse sample in terms of food production, should be collected to further analyze the relationship between past or present food production and attitude toward local foods. Overall, this study shows that a diverse sample is important for local food research. In terms of trait research, better understanding the personality trait openness could be especially beneficial to local food marketers. Additionally, as local food campaigns continue to saturate the marketplace, message strength and quality become paramount in reaching the target audience.

## **Conclusion**

The study set out to uncover what message frames positively influence attitudes toward and intent to purchase local foods with personality trait as a moderating variable. This study was specifically conducted to better understand message effectiveness around local foods as local foods could have several individual and community level benefits.

In this process, we discovered that simple messages do not seem to create a meaningful impact among consumers. As consumers are saturated with local food campaigns, local food marketers must become more thoughtful about creating strong messages that evoke careful thought in the target audience. Findings also point to the personality trait openness as a significant predictor of each element of the theory of planned behavior model in relation to local foods. In addition to creating strong arguments for local foods, those involved with marketing local foods should direct their campaigns to regions where the trait openness is particularly dense.

Hopefully, more research is conducted in this realm as a better understanding of local food messaging might lead to greater marketing power by small farmers and ranchers who wish to enter into or increase their presence in the local food sector. The local food movement could create strong social ties within communities, and boost income among small producers.

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APPENDIX A: PRENOTIFICATION SCRIPT WITH EXTRA CREDIT INSENTIVE –  
LAUNCH I

Hello!

I'm Catharine Koroulis, a graduate student in the Public Communication & Technology program. For my master's thesis, I'm working on a study to examine food-related messages and student purchasing habits.

The survey asks questions about how likely you are to purchase certain types of food. The survey is 8 - 10 minutes long, it's confidential, and it's an opportunity to earn [#] extra credit points as well as the chance to win one of two Amazon gift cards worth \$25 each. I'm hoping you will be willing to provide your input!

The survey will be sent to your email tomorrow, and it's voluntary. Please email me at [catharine.koroulis@colostate.edu](mailto:catharine.koroulis@colostate.edu) if you have any questions.

Thank you!

APPENDIX B: PRENOTIFICATION SCRIPT WITHOUT EXTRA CREDIT INCENTIVE –  
LAUNCH I & LAUNCH II

Hello!

I'm Catharine Koroulis, a graduate student in the Public Communication & Technology program. For my master's thesis, I'm working on a study to examine food-related messages and student purchasing habits.

The survey asks questions about how likely you are to purchase certain types of food. The survey is 8 - 10 minutes long, it's confidential, and it's an opportunity to win one of two Amazon gift cards worth \$25 each. I'm hoping you will be willing to provide your input!

The survey will be sent to your email tomorrow, and it's voluntary. Please email me at [catharine.koroulis@colostate.edu](mailto:catharine.koroulis@colostate.edu) if you have any questions.

Thank you!

## APPENDIX C: INVITATION EMAIL WITH EXTRA CREDIT INCENTIVE – LAUNCH I

Dear [Student Name],

I am conducting a research study called, Message Effectiveness in the Local Food Context. The Principal Investigator is Katie Abrams, Ph.D., and I am the co-Investigator. I am writing to ask you for your help with a survey for a master's thesis on food-related messages and student purchasing habits. You have been chosen to complete a brief questionnaire about your attitudes regarding food purchasing habits.

You will be rewarded with extra credit in JTC 300 for completing the survey. Additionally, you will be entered into a drawing to win one of two Amazon gift cards worth \$25 each.

The survey will only take about 8 – 10 minutes to complete. This survey is not optimized for mobile devices, so please complete the survey on a desktop or laptop. To begin the survey, please click this link:

[LINK]

If you have any questions, comments, or difficulties with the survey, please contact me by replying to this message or calling 970-819-2522. You can, also, contact Katie Abrams at [Katie.abrams@colostate.edu](mailto:Katie.abrams@colostate.edu). If you have questions regarding your rights in this research, you can contact CSU IRB Office at [RICRO\\_IRB@mail.colostate.edu](mailto:RICRO_IRB@mail.colostate.edu).

We sincerely appreciate your help with the survey.

If you are not interested in participating or believe you were contacted in error, click this link:  
[OPT OUT LINK]

Thank you,

Catharine Koroulis  
[catharine.koroulis@colostate.edu](mailto:catharine.koroulis@colostate.edu)  
Graduate Student  
Public Communication & Technology  
Colorado State University

APPENDIX D: INVITATION EMAIL WITHOUT EXTRA CREDIT INCENTIVE –  
LAUNCH I & LAUNCH II

Invitation Email:

Dear [Student Name],

I am conducting a research study called, Message Effectiveness in the Local Food Context. The Principal Investigator is Katie Abrams, Ph.D., and I am the co-Investigator. I am writing to ask you for your help with a survey for a master's thesis on food-related messages and student purchasing habits. You have been chosen to complete a brief questionnaire about your attitudes regarding food purchasing habits.

You will be rewarded with the opportunity to win one of two Amazon gift cards worth \$25 each. The survey will only take about 8 – 10 minutes to complete. This survey is not optimized for mobile devices, so please complete the survey on a desktop or laptop. To begin the survey, please click this link:

[LINK]

If you have any questions, comments, or difficulties with the survey, please contact me by replying to this message or calling 970-819-2522. You can, also, contact Katie Abrams at [Katie.abrams@colostate.edu](mailto:Katie.abrams@colostate.edu). If you have questions regarding your rights in this research, you can contact CSU IRB Office at [RICRO\\_IRB@mail.colostate.edu](mailto:RICRO_IRB@mail.colostate.edu).

We sincerely appreciate your help with the survey.

If you are not interested in participating or believe you were contacted in error, click this link:  
[OPT OUT LINK]

Thank you,

Catharine Koroulis  
[catharine.koroulis@colostate.edu](mailto:catharine.koroulis@colostate.edu)  
Graduate Student  
Public Communication & Technology  
Colorado State University

APPENDIX E: FIRST REMINDER EMAIL WITH EXTRA CREDIT INCENTIVE AND  
WITHOUT EXTRA CREDIT INCENTIVE – LAUNCH I & LAUNCH II

Dear [Student Name],

A week ago we sent an email invitation requesting you to complete a survey about food-related messages and student purchase habits. Thank you so much for completing the survey if you have done so. If not, we highly encourage you to fill out the survey. The survey is short, and it should only take 8 - 10 minutes of your time.

This survey is not optimized for mobile devices, so please complete the survey on a desktop or laptop. To complete the survey, please click on the link:

[LINK]

If you have any questions, please feel free to reply to this message. Thank you so much for helping us with our study.

To opt out of future emails about this survey, please click this link: [LINK]

Sincerely,

Catharine Koroulis  
catharine.koroulis@colostate.edu  
Graduate Student  
Public Communication & Technology  
Colorado State University



APPENDIX F: SECOND REMINDER EMAIL WITH EXTRA CREDIT INSENTIVE –  
LAUNCH I

Second Reminder Email:

Dear [Student Name],

Last week, we reached out to you requesting for your help to complete a survey about food-related messages and student purchasing habits. To ensure that our survey results are accurate, we are contacting you one last time for your help and valuable input. The results of the survey will be immensely helpful in learning about student attitudes towards making food purchases.

You will be rewarded with extra credit in JTC 300 for taking this survey and it will close on March 22. Additionally, you will be entered into a drawing to win one of two Amazon gift cards worth \$25 each.

This survey is not optimized for mobile devices, so please complete the survey on a desktop or laptop. Please click on the survey link below to fill out the survey:

[LINK]

Thanks for taking the time to fill out the survey.

Sincerely,

Catharine Koroulis  
catharine.koroulis@colostate.edu  
Graduate Student  
Public Communication & Technology  
Colorado State University

APPENDIX G: SECOND REMINDER EMAIL WITHOUT EXTRA CREDIT INCENTIVE –  
LAUNCH I & LAUNCH II

Dear [Student Name],

Last week, we reached out to you requesting for your help to complete a survey about food-related messages and student purchasing habits. To ensure that our survey results are accurate, we are contacting you one last time for your help and valuable input. The results of the survey will be immensely helpful in learning about student attitudes towards making food purchases.

You will be rewarded with the opportunity to win one of two Amazon gift cards worth \$25 each.

This survey is not optimized for mobile devices, so please complete the survey on a desktop or laptop. Please click on the survey link below to fill out the survey:

[LINK]

Thanks for taking the time to fill out the survey.

Sincerely,

Catharine Koroulis  
catharine.koroulis@colostate.edu  
Graduate Student  
Public Communication & Technology  
Colorado State University

APPENDIX H: FINAL REMINDER EMAIL WITH EXTRA CREDIT INCENTIVE –  
LAUNCH I

Second Reminder Email:

Dear [Student Name],

Last week, we reached out to you requesting for your help to complete a survey about food-related messages and student purchasing habits. To ensure that our survey results are accurate, we are contacting you one last time for your help and valuable input. The results of the survey will be immensely helpful in learning about student attitudes towards making food purchases.

You will be rewarded with extra credit in JTC 300 for taking this survey and it will close on March 22. Additionally, you will be entered into a drawing to win one of two Amazon gift cards worth \$25 each.

This survey is not optimized for mobile devices, so please complete the survey on a desktop or laptop. Please click on the survey link below to fill out the survey:

[LINK]

Thanks for taking the time to fill out the survey.

Sincerely,

Catharine Koroulis  
catharine.koroulis@colostate.edu  
Graduate Student  
Public Communication & Technology  
Colorado State University

APPENDIX I: FINAL REMINDER EMAIL WITHOUT EXTRA CREDIT INCENTIVE –  
LAUNCH I & LAUNCH II

Dear [Student Name],

Before spring break, we reached out to you requesting for your help to complete a survey about food-related messages and student purchasing habits. To ensure that our survey results are accurate, we are contacting you one last time for your help and valuable input. The results of the survey will be immensely helpful in learning about student attitudes towards making food purchases.

**You will be rewarded with the opportunity to win one of two Amazon gift cards worth \$25 each. The survey closes tonight at 11:59 pm.**

This survey is not optimized for mobile devices, so please complete the survey on a desktop or laptop. Please click on the survey link below to fill out the survey:

[LINK]

Thanks for taking the time to fill out the survey.

Sincerely,

Catharine Koroulis  
catharine.koroulis@colostate.edu  
Graduate Student  
Public Communication & Technology

## APPENDIX J: IRB EXEMPT LETTER – LAUNCH I



Research Integrity & Compliance Review Office  
Office of Vice President for Research  
Fort Collins, CO 80523-2011  
(970) 491-1533  
FAX (970) 491-2283

**Date:** February 15, 2016

**To:** Katie Abram, Ph.D., Journalism and Media Communication  
Catharine Koroulis, Journalism and Media Communication

**From:** IRB Coordinator, Research Integrity & Compliance Review Office  
(RICRO\_IRB@mail.colostate.edu)

**Re:** Change Readiness: Realities and Perceptions of Vice Presidents for Student Affairs

**IRB ID:** 046-17H      **Review Date:** February 15, 2016  
This project is valid from three years from the review date.

---

The Institutional Review Board (IRB) Coordinator has reviewed this project and has declared the study exempt from the requirements of the human subject protections regulations with conditions as described above and as described in 45 CFR 46.101(b):

Category 2 - Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless: (i) information obtained is recorded in such manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

---

The IRB determination of exemption means that:

- This project is valid for three years from the initial review. After the three years, the file will be closed and no further research should be conducted. If the research needs to continue, please let the IRB Coordinator know before the end of the three years. You do not need to submit an application for annual continuing review.
- You must carry out the research as proposed in the Exempt application, including obtaining and documenting (signed) informed consent if stated in your application or if required by the IRB.
- Any modification of this research should be submitted to the IRB through an email to the IRB Coordinator, prior to implementing any changes, to determine if the project still meets the Federal criteria for exemption.
- Please notify the IRB Coordinator (RICRO\_IRB@mail.colostate.edu) if any problems or complaints of the research occur.

Please note that you must submit all research involving human participants for review by the IRB. Only the IRB or designee may make the determination of exemption, even if you conduct a similar study in the future.

## APPENDIX K: IRB APPROVAL – LAUNCH II



**Research Integrity & Compliance Review Office**  
Office of Vice President for Research  
Fort Collins, CO 80523-2011  
(970) 491-1553  
FAX (970) 491-2293

**DATE:** March 10, 2016

**TO:** Katie Abram, Ph.D., Journalism and Media Communication  
Catharine Koroullis, Journalism and Media Communication

**FROM:** IRB Coordinator, Research Integrity & Compliance Review Office  
(RICRO\_IRB@mail.colostate.edu)

**TITLE:** Change Readiness: Realities and Perceptions of Vice Presidents for Student Affairs

**IRB ID:** 046-17H **Review Date:** March 10, 2016  
This project is valid for three years from the review date.

The Institutional Review Board (IRB) Coordinator has reviewed the following modifications of this project:

1. Updated Exempt request with modifications to recruitment per instructors
2. Updated Invitation Email (JTC 300)-Revision
3. Updated Invitation Email (MATH 101)-Revision
4. Koroullis Study Introductions (JTC300)
5. Koroullis Study Introductions (MATH101)
6. Survey Announcement Script (JTC300)
7. Survey Announcement Script (MATH101)
8. Final Survey (1)

and has declared the study remains exempt from the requirements of the human subject protections regulations as described in 45 CFR 46.101(b). The IRB determination of exemption means that:

- You do not need to submit an application for annual continuing review.
- You must carry out the research as proposed in the IRB application, including obtaining and documenting (signed) informed consent if stated in your application or if required by the IRB.
- Any modification of this research should be submitted to the IRB through an email to the RICRO IRB Coordinator (RICRO\_IRB@mail.colostate.edu), prior to making any changes, to determine if the project still meets the Federal criteria for exemption. If it is determined that exemption is no longer warranted, then an IRB proposal will need to be submitted and approved before proceeding with data collection.
- Please notify the IRB (RICRO\_IRB@mail.colostate.edu) if any problems or complaints of the research occur.

Please note that you must submit all research involving human participants for review by the IRB. **Only the IRB may make the determination of exemption**, even if you conduct a similar study in the future.

## APPENDIX L: CONSENT FORM – LAUNCH I

You are invited to participate in a brief survey about your opinions regarding food purchasing habits. You will be asked questions about your opinion about food purchasing habits, availability of food products, and your degree of separation from food production. Your responses will help us understand attitudes about purchasing food, as well as availability of food sources.

It will take about 8 - 10 minutes to complete the survey. If you are enrolled in JTC 300, you will receive extra credit and a chance to win one of two Amazon gift cards worth \$25 each as a thank you for your thoughtful responses. If you are enrolled in MATH 101 (and not enrolled in JTC 300), you will be entered into the same drawing to win one of two Amazon gift cards worth \$25 each as a thank you for your thoughtful responses. However, if you are enrolled in MATH 101 (and not enrolled in JTC 300) you will not be offered any extra credit. If this survey is being offered to you through both MATH 101 and JTC 300, you will only receive one entry into the gift card drawing and only need to take the survey once to receive extra credit in JTC 300.

Your name will be separated from your survey data so we can ensure you receive the extra credit points (if you are enrolled in JTC 300), but your data will be anonymous. Your participation in this study is completely voluntary. There is no penalty for not participating. You have the right to withdraw from this study at any time without consequence, and you can skip any question that you would prefer not to answer.

Whom to contact if you have questions about the study: Catharine Koroulis, Public Communication & Technology graduate student, [catharine.koroulis@colostate.edu](mailto:catharine.koroulis@colostate.edu). You can also contact Dr. Katie Abrams at [Katie.abrams@colostate.edu](mailto:Katie.abrams@colostate.edu).

Whom to contact about your rights as a research participant in the study: Colorado State University Research Integrity & Compliance Review Office (RICRO), [RICRO\\_IRB@mail.colostate.edu](mailto:RICRO_IRB@mail.colostate.edu); 970-491-1553

If you do not wish to participate in this study, exit the browser window. If you wish to complete the alternative extra credit assignment instead, please contact your instructor.

[CHECKBOX] I have read the procedure above and agree to participate in the survey.

## APPENDIX M: CONSENT FORM – LAUNCH II

You are invited to participate in a brief survey about your opinions regarding food purchasing habits. You will be asked questions about your opinion about food purchasing habits, availability of food products, and your degree of separation from food production. Your responses will help us understand attitudes about purchasing food, as well as availability of food sources.

It will take about 8 - 10 minutes to complete the survey. If you are enrolled in JTC 300-006 or JTC 300-007, you will receive extra credit and a chance to win one of two Amazon gift cards worth \$25 each as a thank you for your thoughtful responses. If you are enrolled in MATH 101, JTC 300-004, or JTC 300-005, you will be entered into the same drawing to win one of two Amazon gift cards worth \$25 each as a thank you for your thoughtful responses. However, if you are enrolled in MATH 101, JTC 300-004, or JTC 300-005, you will not be offered any extra credit. If this survey is being offered to you through both MATH 101 and JTC 300-006 or JTC 300-007, you will only receive one entry into the gift card drawing and only need to take the survey once to receive extra credit in JTC 300.

Your name will be separated from your survey data so we can ensure you receive the extra credit points (if you are enrolled in JTC 300-006 or JTC 300-007), but your data will be anonymous. Your participation in this study is completely voluntary. There is no penalty for not participating. You have the right to withdraw from this study at any time without consequence, and you can skip any question that you would prefer not to answer.

Whom to contact if you have questions about the study: Catharine Koroulis, Public Communication & Technology graduate student, [catharine.koroulis@colostate.edu](mailto:catharine.koroulis@colostate.edu). You can also contact Dr. Katie Abrams at [Katie.abrams@colostate.edu](mailto:Katie.abrams@colostate.edu).

Whom to contact about your rights as a research participant in the study: Colorado State University Research Integrity & Compliance Review Office (RICRO), [RICRO\\_IRB@mail.colostate.edu](mailto:RICRO_IRB@mail.colostate.edu); 970-491-1553

If you do not wish to participate in this study, exit the browser window. If you wish to complete the alternative extra credit assignment instead, please contact your instructor.

[CHECKBOX] I have read the procedure above and agree to participate in the survey.



## APPENDIX N: BFI SCALE & SCORING INSTRUCTIONS

### How I am in general

Here are a number of characteristics that may or may not apply to you. For example, do you agree that you are someone who *likes to spend time with others*? Please write a number next to each statement to indicate the extent to which you agree or disagree with that statement.

1 Disagree Strongly	2 Disagree a little	3 Neither agree nor disagree	4 Agree a little	5 Agree strongly
---------------------------	---------------------------	------------------------------------	------------------------	------------------------

I am someone who...

- |   |   |
|---|---|
| 1._____ Is talkative                            | 24._____ Is emotionally stable, not easily upset    |
| 2._____ Tends to find fault with others         | 25._____ Is inventive                               |
| 3._____ Does a thorough job                     | 26._____ Has an assertive personality               |
| 4._____ Is depressed, blue                      | 27._____ Can be cold and aloof                      |
| 5._____ Is original, comes up with new ideas    | 28._____ Perseveres until the task is finished      |
| 6._____ Is reserved                             | 29._____ Can be moody                               |
| 7._____ Is helpful and unselfish with others    | 30._____ Values artistic, aesthetic experiences     |
| 8._____ Can be somewhat careless                | 31._____ Is sometimes shy, inhibited                |
| 9._____ Is relaxed, handles stress well.        | 32._____ Is considerate and kind to almost everyone |
| 10._____ Is curious about many different things | 33._____ Does things efficiently                    |
| 11._____ Is full of energy                      | 34._____ Remains calm in tense situations           |

- |  |  |
|--|--|
| 12._____ Starts quarrels with others   | 35._____ Prefers work that is routine                  |
| 13._____ Is a reliable worker          | 36._____ Is outgoing, sociable                         |
| 14._____ Can be tense                  | 37._____ Is sometimes rude to others                   |
| 15._____ Is ingenious, a deep thinker  | 38._____ Makes plans and follows through with them     |
| 16._____ Generates a lot of enthusiasm | 39._____ Gets nervous easily                           |
| 17._____ Has a forgiving nature        | 40._____ Likes to reflect, play with ideas             |
| 18._____ Tends to be disorganized      | 41._____ Has few artistic interests                    |
| 19._____ Worries a lot                 | 42._____ Likes to cooperate with others                |
| 20._____ Has an active imagination     | 43._____ Is easily distracted                          |
| 21._____ Tends to be quiet             | 44._____ Is sophisticated in art, music, or literature |
| 22._____ Is generally trusting         |  |
| 23._____ Tends to be lazy              |  |

## SCORING INSTRUCTIONS

To score the BFI, you'll first need to reverse-score all negatively-keyed items:

Extraversion: 6, 21, 31  
 Agreeableness: 2, 12, 27, 37  
 Conscientiousness: 8, 18, 23, 43  
 Neuroticism: 9, 24, 34  
 Openness: 35, 41

To recode these items, you should subtract your score for all reverse-scored items from 6. For example, if you gave yourself a 5, compute 6 minus 5 and your recoded score is 1. That is, a score of 1 becomes 5, 2 becomes 4, 3 remains 3, 4 becomes 2, and 5 becomes 1. Next, you will create scale scores by averaging the following items for each B5 domain (where R indicates using the reverse-scored item).

Extraversion: 1, 6R 11, 16, 21R, 26, 31R, 36  
 Agreeableness: 2R, 7, 12R, 17, 22, 27R, 32, 37R, 42  
 Conscientiousness: 3, 8R, 13, 18R, 23R, 28, 33, 38, 43R  
 Neuroticism: 4, 9R, 14, 19, 24R, 29, 34R, 39  
 Openness: 5, 10, 15, 20, 25, 30, 35R, 40, 41R, 44

## APPENDIX O: SURVEY QUESTIONS

Here are a number of characteristics that may or may not apply to you. Please indicate the extent to which you agree/disagree each of these characteristics applies to you. I am someone who...

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Is talkative	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tends to find fault with others	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Does a thorough job	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is depressed, blue	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

I am someone who...

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Is original, comes up with new ideas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is reserved	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is helpful and unselfish with others	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Can be somewhat careless	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Here are a number of characteristics that may or may not apply to you. Please indicate the extent to which you agree/disagree each of these characteristics applies to you. I am someone who...

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Is relaxed, handles stress well	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is curious about many different things	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is full of energy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Starts quarrels with others	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

I am someone who...

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Is a reliable worker	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Can be tense	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is ingenious, a deep thinker	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Generates a lot of enthusiasm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Here are a number of characteristics that may or may not apply to you. Please indicate the extent to which you agree/disagree each of these characteristics applies to you. I am someone who...

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Has a forgiving nature	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tends to be disorganized	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Worries a lot	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Has an active imagination	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

I am someone who...

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Tends to be quiet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is generally trusting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tends to be lazy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is emotionally stable, not easily upset	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Here are a number of characteristics that may or may not apply to you. Please indicate the extent to which you agree/disagree each of these characteristics applies to you. I am someone who...

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Is inventive	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Has an assertive personality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Can be cold and aloof	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Perseveres until the task is finished	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

I am someone who...

	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree
Can be moody	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Values artistic, aesthetic experiences	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is sometimes shy, inhibited	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is considerate and kind to almost everyone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Here are a number of characteristics that may or may not apply to you. Please indicate the extent to which you agree/disagree each of these characteristics applies to you. I am someone who...

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Does things efficiently	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Remains calm in tense situations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Prefers work that is routine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is outgoing, sociable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

I am someone who...

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Is sometimes rude to others	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Makes plans and follows through with them	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gets nervous easily	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Likes to reflect, play with ideas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

I am someone who...	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Has few artistic interests	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Likes to cooperate with others	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is easily distracted	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is sophisticated in art, music, or literature	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

\

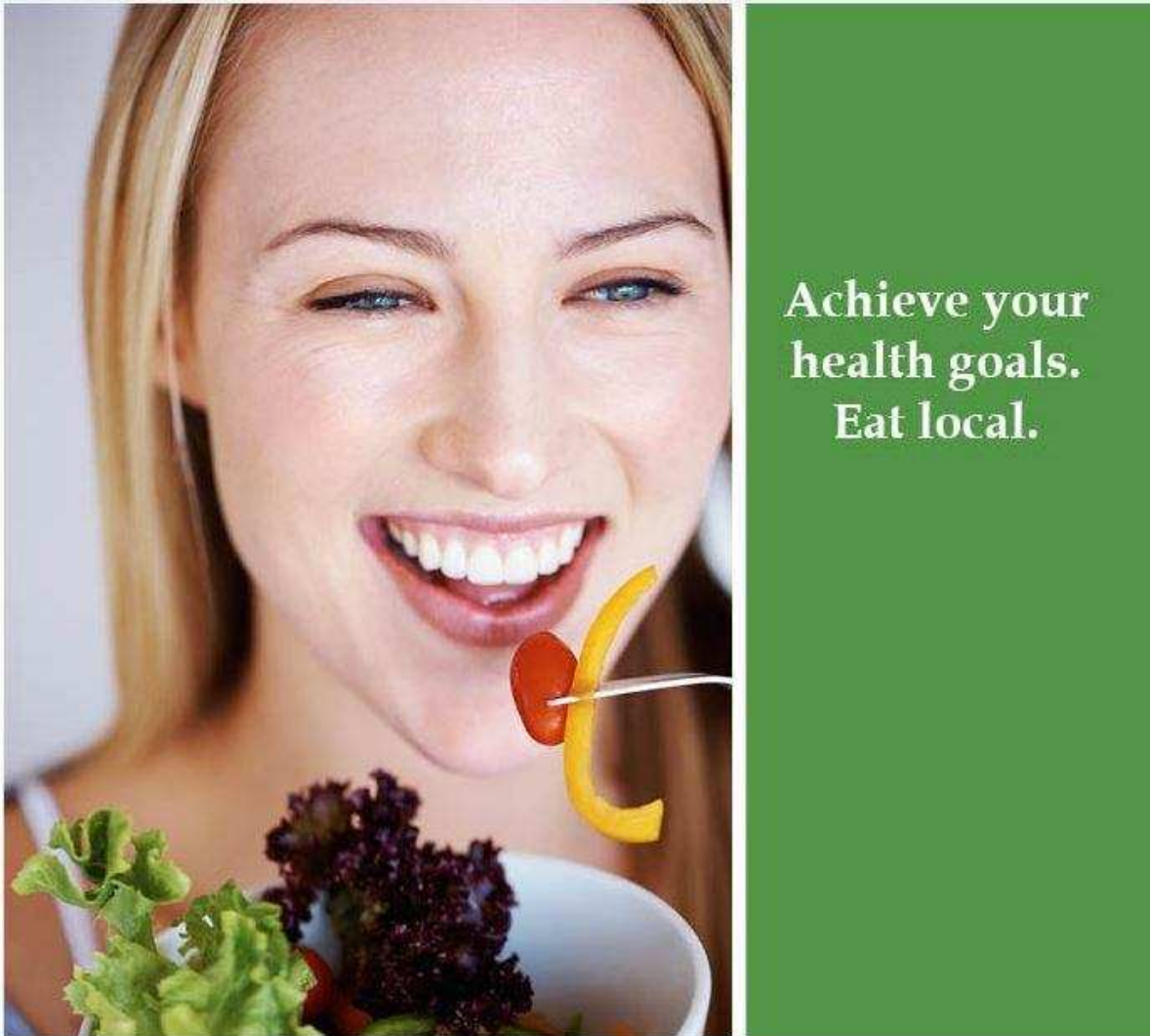
Spend some time looking at the ad below. You will answer questions about it later. You will be able to continue after 10 seconds.



**Superior Quality.  
Eat Local.**



Spend some time looking at the ad below. You will answer questions about it later. You will be able to continue after 10 seconds.



Spend some time looking at the ad below. You will answer questions about it later. You will be able to continue after 10 seconds.



**Family farms  
depend on you.  
Eat local.**

Spend some time looking at the ad below. You will answer questions about it later. You will be able to continue after 10 seconds.



The next several questions will ask you about your opinions of local food.

Local food products are healthier.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree

Local food products have superior quality.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree

Local food products are more tasty.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree

Local food products are more attractive than non-local food.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree

Local food products are in fashion.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree

Local food products have no harmful effects.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree

Local food products are more expensive than non-local food.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree

Local food products are a fraudulent marketing scheme.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree

Local food products are worse than non-local food products.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree

Please select the most appropriate responses to the following statements.

	Definitely Avoid	Avoid	Sometimes Avoid	Neither Avoid nor Buy	Sometimes Buy	Buy	Definitely Buy
Most people important to me, think I should ____ local food.	▪	▪	▪	▪	▪	▪	▪
Most people who influence what I do, think that I should ____ local food.	▪	▪	▪	▪	▪	▪	▪

If locally produced foods were available in the shops, nothing would prevent me from buying them.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree

How much control do you have over whether you will eventually buy local foods?

- Absolutely No Control
- No Control
- Somewhat No Control
- Neither
- Some Control
- Control
- Complete Control

If local foods were available in the shops, I could easily buy it if I wanted to.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree

How difficult would it be for you to buy local foods in terms of availability?

- Extremely Difficult
- Difficult
- Somewhat Difficult
- Neutral
- Somewhat Easy
- Easy
- Extremely Easy

How difficult would it be for you to buy local foods in terms of cost?

- Extremely difficult
- Difficult
- Somewhat difficult
- Neutral
- Somewhat Easy
- Easy
- Extremely Easy

Even if I should want to buy local foods, I do not think I would ever be able to do so.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree

Please describe how likely you are to eat local foods.

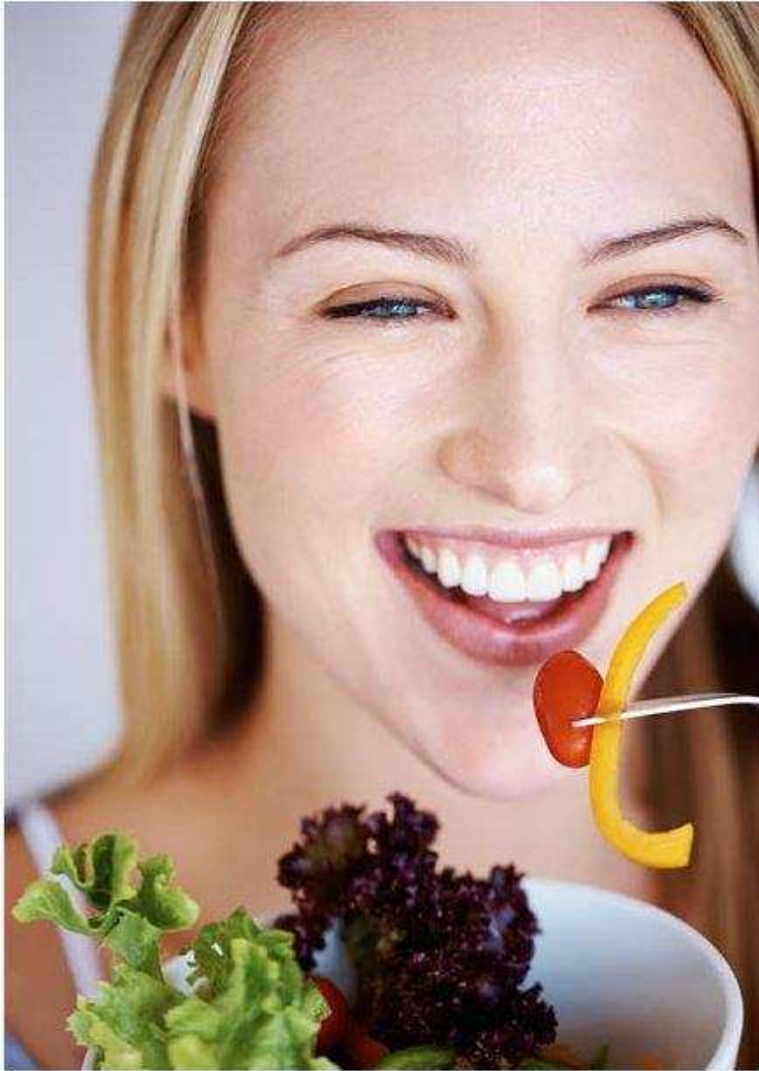
	Strongly disagree	Disagree	Somewhat disagree	Neither Agree nor Disagree	Somewhat agree	Agree	Strongly agree
The chance that I will eat local food in the next 2 weeks is high.	▪	▪	▪	▪	▪	▪	▪
I am planning to eat local foods within the next 2 weeks.	▪	▪	▪	▪	▪	▪	▪
My willingness to eat local foods is high.	▪	▪	▪	▪	▪	▪	▪





Superior Quality.  
Eat Local.





**Achieve your  
health goals.  
Eat local.**



**Family farms  
depend on you.  
Eat local.**



Ski the Rockies

Did this same ad appear to you earlier in the survey?

- Yes
- No
- No ad was displayed earlier and I do not see one above now.

What do you think this ad is emphasizing?

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
Local food is healthy.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Local food is high quality.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
When I buy local food, I'm helping family farms.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The ad above does not make me think about local food.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

After looking at this ad, how to you feel about local food?

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
Local food is healthy.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Local food is high quality.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
When I buy local food, I'm helping family farms.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The ad above does not make me think about local food.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

What year were you born? Provide the complete year, for example 1990. \_\_\_\_\_

What is your gender?

- ☐ Male
- ☐ Female
- ☐ Other

Who primarily pays for your food?

- ☐ I do
- ☐ Someone else (e.g., parent)

On average, about how much money do you spend on food from the grocery store and/or dining hall each week?

- ☐ \$0
- ☐ \$1-25
- ☐ \$26-50
- ☐ \$51-75
- ☐ \$76-100
- ☐ \$101-125
- ☐ \$126-150
- ☐ \$151 or more

On average, about how much money do you spend on food from convenience shops (e.g., gas stations, vending machines, coffee shops, etc.) and/or restaurants (including takeout and delivery) each week?

- \$0
- \$1-25
- \$26-50
- \$51-75
- \$76-100
- \$101-125
- \$126-150
- \$151 or more

Do you currently live or work on a farm or ranch?

- Yes
- No

Have you ever lived or worked on a farm or ranch?

- Yes
- No

Do you currently garden, own animals or otherwise produce any of your own food?

- Yes
- No

Please include your name, email, and the class in which you are enrolled to receive extra credit for taking this survey and/or be entered in the drawing to win a \$25 Amazon.com gift card. Note: MATH 101 is not offering any extra credit but students will be entered in the gift card drawing.

First Name

Last Name

Email Address

Which of the following classes are you enrolled in?

- MATH 101 - Kelly Chappell
- JTC 300 - Roger Lipker
- JTC 300 - Darrell Blair
- JTC 300 - Rhema Zlaten
- JTC 300 - Brian Trout