

MOTHERS' VALUES IN THEIR GROCERY  
PURCHASING DECISIONS: A Q METHOD STUDY

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MOTHERS' VALUES IN THEIR GROCERY MAKING  
DECISIONS: A Q METHOD STUDY

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MOTHERS' VALUES IN THEIR GROCERY PURCHASING DECISIONS: A Q  
METHOD STUDY

AGRICULTURAL EDUCATION

Food labels serve as a form of communication between producers and consumers (Olynk, 2012) and show the values or characteristics associated with the product (Barham, 2002). As consumers become more interested in where their food comes from, they are also beginning to purchase food items from stores or markets that share their personal values. The principle of convergent selectivity suggests consumers have the freedom to make choices for themselves, rather than those based on public opinion (Stephenson, 1967). Therefore, consumers are making their grocery shopping decisions based on their beliefs and values. Mothers have an increased awareness and knowledge of various food products due to their role in selecting healthy foods for their children. This study used Q methodology to identify mothers' values in their grocery making decisions. Mothers (N = 33) between the ages of 18 and 50 years sorted 47 photos of food labels to demonstrate values in product purchases. Factor analysis, field notes, and post-sort interviews were used to interpret the results as the Healthy Aware Mom, the Healthy Avoider Mom, and the Healthy Holistic Mom. The Healthy Aware Mom was interpreted to be familiar with agricultural practices and believes foods with positive ingredients to be healthy, such as those with added vitamins and minerals. The Healthy Avoider Mom works to avoid negative ingredients such as dyes and preservatives, but will purchase products with labels showing positive ingredients, such as vitamins and minerals. The Healthy Avoider Mom is also skeptical of production practices. The Healthy Holistic Mom values relationships with producers as they want to know how and where their food was produced. They look for information on how a product not only effects their family, but the entire supply chain. Further research may lead to a deeper understanding of consumers perceptions related to agricultural production methods and their values when purchasing groceries.

Key words: Q methodology, food labels, mothers, grocery shopping, convergent selectivity, play theory

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## CHAPTER I

### INTRODUCTION TO THE STUDY

Consumers are flooded with information relating to food and agriculture issues such as health values, food qualities or characteristics, production methods, environmental concerns and ethical concerns (Wunderlich, Gatto, & Smoller, 2018). Food and agricultural information may come from print, social media, television, the internet, celebrities, friends and family (Buzby & Ready, 1996; Schneider, Eli, McLennan, Dolan Lezaun, & Ulijaszek, 2019).

An abundance of information may provide consumers with information on a single topic leading to two different outcomes (Nagler, 2014). With a variety of information, consumers may be conflicted in which product to choose. For example, a person may read two different stories related to wine and its different health effects (Nagler, 2014; Lee, Nagler, and Wang, 2018). One article may represent wine in a positive aspect for its heart-health benefits, whereas another article may represent the negative effects of wine for its link to an increased risk of cancer. Different outcomes may cause individuals to be conflicted in their decision on whether to drink wine (Nagler; 2014; Lee et al., 2018). Conflicting information may be due to the language used or the

information presented across various organizations (Nagler & Hornik, 2012). Conflicting information may lead to confusion or distrust among consumers (Anisimova Mavondo, & Weiss, 2019).

Food labels are used as a means to help better relay information between producer and consumer and increase the awareness of credence attributes (McEachern & Warnaby, 2008). In more recent years, consumers began making consumption choices based on personal virtues (Micheletti, 2003). When purchasing based on virtues, consumers are choosing a product in relation to what they believe is right or wrong. Messages on products are used to help consumers make choices but are also framed to target different virtues (Micheletti, 2003). While food labels represent a variety of different areas, they are all associated with a product's values (Barham, 2002). Barham (2002) stated many food labels may be placed under one category: value-based labels. These values may be associated with social, environmental, ethical, or a combination of multiple categories.

Food labeling is an important tool in delivering information to the consumer (Verbek, 2005), which may lead to conflicting information among consumers. Messages may also use words or phrases to describe food and agriculture; however, words may have different meanings depending on who is using them (Olynk, 2012). Images and language may be used to represent both positive and negative aspects of the industry. Consumers may associate positive or negative characteristics with a label depending on the label's framework or how the information is organized (Abrams & Meyers, 2017; Jeong & Lundy, 2017; Ochs, Wolf, Widmar, & Bir, 2018). Therefore, it is important to understand consumers' perceptions of food labels to develop the proper communication strategies to effectively promote different areas of food and agriculture.

## **Statement of the Problem**

Mothers play the main role managing children's diets and health as well as teaching their children healthy habits (Johnson, Sharkey, Dean, McIntosh, & Kubena, 2011). Additionally, mothers play an important role in choosing nutritious foods for their children as they are the primary grocery shopper (Moscato & Machin, 2018). Research has shown that mothers with an increased level of nutritional knowledge have children who maintain a healthier weight and consume less sugar, fats, and cholesterol (Variyam, Blaylock, Lin, Ralston, & Smallwood, 1999). Mothers' primary source of nutritional and healthy living information knowledge stems from the internet and social media (Laws, Walsh, Hesketh, Downing, Kuswara, & Campbell, 2019). However, the flood of information relating to safe and healthy food choices may lead to confusion, especially at the point of purchase when they face conflicting information on food labels. There is a lack of literature on how consumers value and perceive food label information (Nagler, 2014; Lee, Nagler, & Wang, 2018). This study focused on mothers' values and perceptions of food production labels. To develop communication strategies to promote positive food and agricultural methods, it is important to understand mothers' perceptions of food labels.

## **Purpose of the Study**

The purpose of this study was to identify mothers' values of food labels in their grocery making decision using Q methodology. Q methodology examines the perceptions of groups of individuals from a subjective viewpoint (McKeown & Thomas, 2013). This study helps marketing agents, producers, and educators better understand mothers' values and perceptions in family grocery decision making.

## **Theoretical Framework**

William Stephenson's Play Theory of Mass Communication is based along a continuum of communication pain and communication pleasure. Mass communication is viewed as subjective play; work is a form of communication pain, while play is a form of communication pleasure. Stephenson's theory is composed of two principles: social control and convergent selectivity (Stephenson, 1967). Social control is related to one's customs or ways of life, whereas convergent selectivity is freedom from social norms (Stephenson, 1967). Stephenson (1967) defined convergent selectivity as the "new or non-customary modes of behavior, our fads and fancies, which allow us opportunities to exist for ourselves, to please ourselves, free to a degree from social control" (p. 2).

Mass media provides the opportunity for convergent selectivity, allowing individuals to consider a diversity of information before ultimately making their own decision. Advertising and marketing are instrumental to convergent selectivity as these efforts allow individuals to identify or choose characteristics for themselves. In other words, convergent selectivity describes how the audience relates personally to an advertisement (Stephenson, 1967). Stephenson (1980) stated the "distinction between information and subjective communicability is very clear in the marketplace" (p. 16). Advertisements provide information related to product and store characteristics, however, the consumer's beliefs or attitude toward advertisement drive their final purchase decision.

Play theory and convergent selectivity is relevant to this study as consumers have a variety of sources to find information related to food labels. Consumers can choose which item to purchase based on their beliefs or values. Consumers may associate their values or wants with different labels.

### **Significance of the Study**

This study is a building block in understanding mothers' values and perspectives of food labels. It is important that researchers work to better understand consumers' perspectives to close the gap between producers and consumers. Understanding individual's perceptions of food labels may help scientists, producers, and educators work to better inform consumers how their food was produced and meaning of various agricultural terms.

### **Scope of the Study**

The scope of this study includes mothers between the ages of 18 – 50 who participated in this research between October and December 2018.

### **Research Question**

In Q methodology, the research question serves as the condition of instruction. Participants are instructed to sort the Q statements based on the condition of instruction (Watts & Stenner, 2005). In this study the condition of instruction was: *Which of these labels most reflect your values in grocery decisions?*

### **Assumptions**

The following assumptions were made regarding this study:

1. Participants have a basic knowledge or familiarity with various food labels.
2. Participants honestly identified themselves as mothers.

### **Limitations**

The following limitation was identified for this study:

The results of this study cannot be generalized to all mothers.

### **Definitions of Terminology**

The following terms were identified and defined as relevant to this study:

*Concourse:* A collection of facts and opinions relating to a topic or question. In this study, the concourse is a collection of photos representing various food labels.

*Condition of Instruction:* The condition of instruction “serves as a guide for the sorting process” (McKeown & Thomas, 2013, p. 26). In Q methodology, the condition of instruction typically asks participants to sort the statements from “most unlike me” to “most like me”

*Convergent selectivity:* An individual’s freedom to choose for themselves rather than making a decision based on public opinion.

*Factor array:* A composite Q sort which represents the viewpoints of a particular factor (Watts & Stenner, 2012; McKeown & Thomas, 2013).

*Factor loading:* McKeown and Thomas (2013) describe factor loadings as correlation coefficients. Factor loadings determine the similarity of a participant’s sort to the composite factor array.

*Food label:* Food labels are front-of-package words, phrases, or images, which may include information related to production, processing, ingredients, or health. Food labels serve as a line of communication between the producer and consumer.

*P set:* The population who participates in the Q sorting activity (McKeown & Thomas, 2013)

*Q methodology:* Q methodology was founded by William Stephenson in 1935. His work was later advanced in 1953. Q methodology aims to identify perceptions from a self-referent or subjective viewpoint. Q methodology looks at patterns of opinion across groups of people rather than those of the individual person.

*Q sample:* Statements selected from the concourse of communication and sorted by the participant in a Q sort activity (McKeown & Thomas, 2013)

*Q sort:* The process of ranking the Q sample statements

## CHAPTER II

### REVIEW OF LITERATURE

The purpose of this study was to identify mothers' values of food production labels in their grocery making decisions. The literature review is relevant to the study's purpose in describing the intent and various types of food labels. Additionally, the literature review addresses the mother's role in grocery shopping and the factors impacting their decisions. The review includes a short overview of agricultural literacy and its relation to consumers' perceptions of food labels. Stephenson's (1967) play theory and the concept of convergent selectivity are used to demonstrate how mothers make their grocery shopping decisions.

#### **Agricultural Literacy**

It is important for consumers to be agriculturally literate or knowledgeable of agricultural terms and production methods to make informed decisions (Frick, Birkenholz & Machtmes, 1995). The National Research Council defined agricultural literacy as the "understanding of the food and fiber system that includes its history and current economic, social, and environmental significance to all Americans" (National Research

Council, 1988, p. 1). Leising, Igo, Heald, Hubert, and Yamamoto (1998) created a Food and Fiber System Literacy Model in which they defined the material students in kindergarten through high school should understand. Powell, Agnew, and Trexel (2008) identified three models that create a more comprehensive understanding of agriculture: the inductive model, deductive model, and the evaluative model. Frick, Kahler, and Miller (1991) define agricultural literacy as “possessing knowledge and understanding of our food and fiber system. An individual possessing such knowledge would be able to synthesize, analyze, and communicate basic information about agriculture” (p. 52).

As consumers become more aware of agricultural terms and production methods, they want to know how their food was produced, where their food was produced, and who produced their food (Olynk, 2012). Individuals looking for food-related information turn to a variety of sources, such as government organizations, advocacy groups, social media, the internet, or consumer organizations (Schneider et al., 2019). With an abundance of information sources, consumers are often presented with conflicting information (Nagler, 2014; Rumble, Holt, & Irani, 2014). Researchers state that consumers using media sources to find information related to food and agriculture often have a misunderstanding of terminology (Wunderlich & Gatto, 2015; Wunderlich, Gatto, & Smoller, 2017). Additionally, in a study conducted by Lundy, Ruth, Telg, & Irani (2006), participants, also agricultural scientists, believed consumers lack basic science knowledge. Participants believed they should take a role in educating consumers on production practices, but not in basic science methods (Lundy et al., 2006).

## **Food Labels**

Food labels serve as a line of communication between producers and consumers (Olynk, 2012) and show the values associated with different products (Barham, 2002). Food labels were originally used as a tool to provide consumers with information related to brand, product ingredients, expiration dates and nutritional facts (Verbeke, 2009). Front-of-package food labels provide information in addition to that of the nutritional facts panel. This information may be associated with environmental factors, positive attributes, negative attributes, or production methods (Cousté, Martos-Partal, & Martinez-Ros, 2012). Positive attributes include information relating to nutrients that may lead to better health, such as calcium, fiber, and vitamins. Negative attributes include information relating to nutrients that should be decreased in a person's diet such as sugar, sodium, and cholesterol. Food labels usually consist of pictures or symbols either in addition to or in place of words, making them easier for consumers to identify (Abrams, Evans, & Duff, 2015). Marketers often use words or visual symbols to imply a healthy or better tasting choice. However, packaging may also lead consumers to believe a product is healthy when in fact it is not (Elliott, 2008).

The nutrition facts panel is also a type of food label. However, the nutrition facts panel provides information related to nutrients, calories and serving size (FDA, n.d.). The nutrition facts panel is used to provide information related to the amount of saturated fat, sugar, salt, fiber, vitamins and nutrients per serving. Additionally, the nutrition facts panel also includes a list of all ingredients in an item. The nutrition facts panel uses only words and numbers, whereas food labels use a combination of words, photos and symbols (FDA, n.d.).

Richards and Curran (2002) stated packaging and labels are used as a form of advertising, “so long as it carries a strategic message, such as performance claims, packaging is just another vehicle for delivering that message” (p. 73). Ahmed, Ahmed, and Salman (2005) defined marketing and consumer information as a role of product packaging. Practical packaging includes factors related to shelf-life, transportation, and display. Marketing includes the messages the producer wants to relay to the consumer i.e., product attributes, price, or promotion. Packaging may also play a role in forming the consumers’ perception of a product (Ahmed et al., 2005).

Howard and Allen (2006) have identified three main functions of food labels. The first function is to identify invisible characteristics. Invisible characteristics may include those factors related to labor. The second trait may be seen as a way to implement public policy, such as reducing pesticides or cage free. Lastly, food labels may serve as a way to identify products sold to niche markets and, in some cases, increase revenues for those growers, such as organic growers.

In addition to the marketing and advertising tools discussed above, rhetorical narratives may be used to shape consumers’ understandings of the food industry (Adams, 2015). Adams (2015) uses Horizon milk labels with the slogan, “Family Farms with Happy Cows” to describe how words and images may be used to influence or play on the emotions of consumers. Images displayed by Horizon include “Happy the Cow” jumping over the Earth and a boy drinking a glass of milk with a plate of cookies. Elsewhere on package is a flag with the word “organic” written across it. On the company’s labels and website, Horizon uses terms such as “happy,” “fresh, organic green pastures,” and “family farms” to build a positive association between consumers and food production.

While Horizon worked to display positive images of their brand and products, the company only featured families who represented a specific image. The different words, phrases, and images were selected by Horizon to attract consumers with specific values and beliefs (Adams, 2015).

For producers, food labels differentiate between products (Ellison, Brooks, & Mieno, 2017). A differentiation in products allows for producers to create awareness of specific production features, such as humanely raised, free range, organic, or hormone free. If the trait is of value and the consumer is willing to pay more, the producer may also increase their profit (Olynk, 2012).

For consumers, food labels aid in the decision-making process. The consumer may consider attributes such as search or experience attributes (Olynk, 2012). Search attributes are those characteristics that can be defined before purchasing a product. Experience attributes are based on the quality of a product. Credence attributes are those characteristics that cannot be determined before or after purchasing a product, such as animal handling or housing practices (Olynk, 2012).

Food labels have been known to be vague, trivial or misleading (Silvergade, 1996; Kozup, Creyer, & Burton, 2003). Additionally, there are often multiple food labels on a package, sometimes providing repetitive information or creating confusion among consumers (Cousté et al., 2012). For example, a product may contain the USDA organic label and the Non-GMO Project Verified label; however, it is a requirement that products are non-GMO in order to be certified organic (Ellison et al., 2017). Heerwagen, Mørkbak, Denver, Sandøe, & Christensen (2015) found there is often a misunderstanding amongst consumers related to animal welfare terms due to the vast number of labels, some often

competing with one another. Additionally, the use of non-GMO labels on foods that do not have a GMO counterpart may be misleading to consumers (Schmidt, 2014). Schmidt (2014) uses the example of avocados, salt, and barley as items that often have non-GMO labels, however, there is not a GMO counterpart.

Cousté et al. (2012) noted an increase of food labels referring to reduced fat, sugar, carbohydrates, or salt, while also claiming an increase in vitamins, minerals and whole grains. According to Maubach et al. (2009), participants indicated they often looked for nutrient content claims, especially those related to vitamins and minerals, if they felt their children did not eat enough fruits and vegetables. However, many unhealthy products may include phrases, such as “made from real fruit,” “naturally flavored,” or “100% Vitamin C” and are often accompanied by photos of fresh fruit (Abrams et al., 2015; Maubach, 2009).

Food labels, in the form of a health claim, have shown to be beneficial when nutritional information is absent or when consumers are unlikely to use the nutrition facts panel (Kozup et al, 2003; Maubach et al., 2009). Parents have previously reported stated they use the Heart Foundation Tick to help indicate whether a product is healthy (Maubach, 2009). This is supported in studies where participants stated emblems from organizations such as The American Heart Association helped them identify healthier foods (Maubach, Hoek, & Mather, 2014). A study conducted by Kozup et al. (2003) identified how product claims are related to the product’s nutrition information. The researchers looked at favorable words or phrases contained in the label and whether the information transferred to the consumers’ perceptions of heart disease or stroke (Kozup et al., 2013).

In addition to nutrition or health claims, food labels may also be associated with production processes attributes. These may include labels such as no antibiotics, hormone free, organic, all natural, cage free, or free-range. Consumers may be drawn to certain labels as they perceive them to be healthier, safer for the environment or produced with higher animal welfare standards. However, the meaning of these labels varies among consumers (Ochs, Wolf, Widmar, & Bir, 2018; Olynk, 2016). For example, Ochs et al. (2018) found consumers to have differences in perceptions of poultry production systems. Researchers have also found consumers to have different perceptions and purchasing intentions surrounding organic products (Howard & Allen, 2010). Additionally, labels such as “all-natural” may have varying definitions or do not follow a certified program. While the USDA and FDA do not have a certified program for “all-natural” products, they do have policies in place stating the product must be free from artificial or synthetic additives (USDA, 2015; FDA, 2018).

Production process attributes may also be related to raising livestock including animal handling and livestock housing (Olynk, 2012). Different production practices can result in different labeling procedures. Animal welfare may be seen by some as an ethical value. These labels may include “no animal testing” or “animal welfare approved”. The use of cages for egg laying hens, gestation crates for pigs, and milking systems for dairy cattle are several of the production systems consumers are becoming more aware of in relation to animal welfare (Olynk, 2012; Ochs et al., 2018). Animals are often moved between multiple locations or owners over their lifetime, making it difficult to relay handling information to consumers.

Social values may also be represented through the use of food labels, also known as ecolabels (Howard & Allen, 2010). An example of a social value label is the fair-trade label, which includes criteria related to fair price and social and environmental standards (Howard & Allen, 2010; Tonkin, Coveney, Meyer, Wilson, & Webb, 2016). Fair trade labels represent products imported to the United States and certified by the non-profit group TransFairUSA (Howard & Allen, 2006; Howard, 2006). Fair trade labels have recently been associated with fresh produce items, such as bananas (Howard, 2006). Ecolabels are often represented through third-party organizations using labels such as “beyond organic” or “post-organic” that include standards in addition to those of USDA organic certification, such as environmental protection or social responsibility (Howard, 2006). Ecolabels may also include those related to animal welfare standards such as “American Humane Certified”, “Animal Welfare Approved” (Howard & Allen, 2010), or “Rainforest Alliance” (Barham, 2002).

Research conducted by Ochs et al. (2018), found consumers have a higher perceived knowledge of food labels than that of production methods. Researchers explain there is a possible disconnect in the understanding of labels and production methods. This may be due to the fact individuals have more contact with food labels than they do with farm production (Ochs et al., 2018).

### **Consumer Shopping Habits**

As consumers are becoming more interested in where their food comes from, they are also beginning to shop in stores with a reputation similar to their values. A 2015 Economic Research Service (ERS) report shows an increase in local food sales in which farmers sell directly to consumers through channels such as farmer’s markets (Low,

Adalja, Beaulieu, Key, Martinez, Melton, Perez, et al., 2015). However, Business Insider (as cited in Peterson, 2017) reported the supermarkets Walmart and Sam's Club make up about one-fifth of the grocery markets in the U.S. The ERS and Nielson Homescan data reported 80% of U.S. households grocery shopping at a supermarket in 1999 compared to 62% in 2010. In a survey conducted by Cummins et al., (2015), 78% of respondents stated they buy their meat from supermarkets such as Walmart, Target, or Kroger. On the other hand, 11% of respondents stated they purchase food from specialty stores such as WholeFoods, and only 4% reported purchasing meat from farmer's markets or directly from the farmer.

Grocery stores may fall into different categories such as supermarkets, chain stores, local stores or specialty food stores (Cho & Volpe, 2017). Target and Walmart are both classified as supermarkets; however, they attract different types of shoppers. CBS News (as cited in D'Innocenzio, 2012) described Walmart as a store selling low-priced items and basic goods, that targets consumers with an average income of \$30,000 - \$60,000. While Target advertises low-priced items, the company features luxurious or designer items at a discount price, with shoppers who have a slightly higher average income than those of Walmart shoppers (D'Innocenzio, 2012). Additionally, WholeFoods and Sprouts Farmers Market are both classified as specialty stores, but attract different consumers. WholeFoods and Sprouts Farmers Market specialize in organic and all-natural foods. The stores also market their fresh salad or sandwich bars and pre-made meals. However, the difference between WholeFoods and Sprouts Farmers Market comes down to price (Loudenback, 2018). WholeFoods has the reputation as the store that takes

one's "whole paycheck", while Sprouts Farmers Market uses the slogan "healthy food for less" or "rock bottom prices" (Loudenback, 2018; Sprouts Farmers Market, n.d.)

### **Mother's Role in Grocery Decision Making**

A study conducted by The Time Use Institute shows women account for nearly two-thirds of all grocery shoppers (Goodman, 2016). Similarly, in a 2013 study, the Private Label Manufacturers Association found more than two-thirds of women are responsible for household grocery shopping. As the primary grocery shopper, mothers play an important role in selecting healthy foods for their children (Moscato & Machin, 2017). Additionally, because women experience pregnancy and childbirth, they become more aware of science and health-related nutritional issues that may impact them or their children as they are often advised to avoid certain foods, or increase others (Moerbeek & Casimir, 2005; Rost, Johnsmeyer, & Mooney, 2014). This increases women's awareness and knowledge of various food products (Moerbeek & Casimir, 2005).

Qin and Brown (2007) conducted a focus group where they found women are more concerned than men regarding the unknown effects of genetic engineering on health. Compared to men, women have been found to have a more negative viewpoint towards biotechnology (Qin & Brown, 2007; Simon, 2010). Women have also been found to be less accepting of genetically engineered products (Moerbeek & Casimir, 2005). Researchers have found individuals with young children associate a greater amount of risk with their children than with themselves (Tonkin et al., 2016). The risks associated with food purchases may include contamination with allergies or health, harmful products during the production process, environmental issues, and social or ethical issues related to food production (Qin & Brown, 2007). Added products during

the production process that may be considered harmful include preservatives, pesticides, hormones or antibiotics (Tonkin et al., 2016). Social risks are those related to fair market practices, trade, and supporting local growers (Tonkin et al., 2016).

### **Theoretical Framework**

The concept of convergent selectivity, a part of the play theory of mass communication, is the foundation of the theoretical framework for this study. Williams Stephenson, the founder of the play theory, proposed that mass communication is a form of enjoyment and words may be seen as a form of subjective play. Stephenson proposed the idea that play can take place in many forms, not just those of a game. Play relates to one's culture or self-satisfaction. Play is a form of communication pleasure.

#### **Play Theory**

Stephenson's play theory is based upon the idea that people use mass media as a form of pleasure and entertainment rather than a source of information. Play theory emphasizes that interaction with mass media and the various options presented allow individuals to change or create their own opinions. Play Theory is based along a continuum of work and play, known as communication pain and communication pleasure. Mass communication is viewed as subjective play: work is a form of communication pain, while play is a form of communication pleasure (Stephenson, 1967). Communication pain is a "command for work and action, for effort and production" (Stephenson, 1967, p. 194). Communication pleasure is "enjoyment, contentment, serenity, delight, such as is characteristic of entertainment, art, drama, conversation, sociability, and the like" (Stephenson, 1967, p. 194). Communication pain is associated with customs and one's way of life, known as social control.

Communication pleasure is a form of play. Play is seen as having fun, it brings no material gain. Individuals find enjoyment or satisfaction in communication play. Stephenson uses the example of politics as a form of communication pain and pleasure. Politicians performing work is an example of communication pain, whereas politics from the public's point-of-view is a form of communication pleasure as it provides people a topic of discussion. Additionally, individuals can move back and forth across the continuum of communication pain and communication pleasure (Stephenson, 1967). Stephenson uses the example of individuals going to work during the week and attending church on Sundays. Going to work is a form of communication pain. Dressing up and participating in a worship service on Sundays is a form of communication pleasure.

Stephenson's theory is composed of two principles, social control and convergent selectivity. Social control is related to custom, cultural beliefs or values, and conformity. Convergent selectivity is freedom from social norms, allowing individuals the opportunity to choose for themselves. Mass media provides the opportunity for convergent selectivity by providing consumers with information related to various products influencing their purchasing decisions.

### **Convergent Selectivity**

Convergent selectivity provides the framework for this study. Individuals are allowed the freedom to make decisions for themselves and are free of constraint. Stephenson (1967) defined convergent selectivity as the "new or non-customary modes of behavior, our fads and fancies, which allow us opportunities to exist for ourselves, to please ourselves, free to a degree from social control" (p. 2). Mendelsohn (1967) defines convergent selectivity as people's ability "to derive pleasure through the free, private

exercise of subjective choices between and within mass media offerings” (p. 407).

Stephenson explained price and product description as forms of information; however, it is when a sale is made that one can determine the subjective actions. Convergent selectivity identifies how the audience views an advertisement (Stephenson, 1963).

Advertising and marketing lead to convergent selectivity as they provide individuals the information to choose products based on their beliefs and values. Advertising is not related to work, but rather entertains and projects fashions and fads (p. 195). Advertising uses communication to help individuals identify with a product and express themselves (Packard, 1957). Packard (1957) uses the example of purchasing a car. The characteristics of the car are symbolic of an individual’s personality. Stephenson (1967) uses the example of a blue-collar worker who dislikes an advertisement for high-end dress clothes. The blue-collar worker dislikes the advertisement because he cannot see himself in that type of setting.

It is often believed advertising is based on public opinion. In advertising, messages are targeted to address characteristics attributed to certain consumer groups. Additionally, products themselves are offered in a variety of colors, sizes, etc., to meet consumers’ expectations. Stephenson illustrated the then-growing practice of recognizing audience segmentation through the examples of tuna and soap marketing. For some, he noted, tuna was viewed as a high-protein snack. However, another segment viewed tuna as a low-cost grocery staple. Similarly, two soaps may both remove dirt for a comparable price. However, through targeted advertising, one soap served as luxury item while the other was simply noted for its ability to get consumers clean (Packard, 1957; Stephenson, 1967).

## **Communication Pleasure**

Prior to Stephenson's ideal of play theory, psychiatrist Thomas Szasz (1957), outlined four models of pleasure, the last of which relates to the idea of communication pleasure. In this model, individuals find pleasure as a "gain in self" (Stephenson, 1967, p. 57) rather than a materialistic gain. A person finds growth or pleasure after participating in an activity, such as having a conversation with another person or participating in an activity where they compete for an award. The individuals do not expect any form of materialistic gain from the other person or activity.

Subjective communicability is a form of communication pleasure.

Communication pleasure is looked at from a self-referent stand point. Convergent selectivity is a form of communication pleasure, seen as a form of enjoyment. Individuals may experience pleasure in entertainment, art, or drama, all forms of convergency. Communication pleasure is found in convergent wants or desires. Stephenson describes convergent communication as a "fill" in mass communications. Communication pleasure "pleases, entertains, and projects fashions and fads" (Stephenson, 1967, p. 195).

Q methodology is used to represent convergent selectivity and communication pleasure in that one's values or perceptions are described through their sort (Stephenson, 1980). Q methodology represents one's subjective view point where an individual can "model for himself what his attitude of mind is about complicated topics, issues, or situations" (Stephenson, 1967, p. 5).

## **Summary**

Williams Stephenson's play theory demonstrates how individuals use news and media as a way to create their own ideas instead of a source of information. The concept

of convergent selectivity expands on play theory in that individuals will make choices based on their fads or fancies. Advertising is a form of convergent selectivity. Individuals may purchase an item they can identify with or see themselves in the same picture shown in the advertisement.

## CHAPTER III

### METHODOLOGY

The purpose of this study was to identify mothers' values of food labels in their grocery decision making. This chapter provides a basis for the role of Q methodology as a measure of subjectivity. This chapter also presents a description of the instrument development, participant recruitment and procedures used in the study. Lastly, this chapter introduces the data analysis used to find the results of the study.

#### **Rationale for Q Methodology**

Q methodology, founded by William Stephenson in 1935, was the research method chosen for this study as Q methodology is used as a means to provide a self-referent, or subjective, point of view (Watts & Stenner, 2012). "Subjectivity refers to the communication of a personal point of view" (McKeown & Thomas, 2013, p. 2). Stephenson describes Q methodology as a "method by which an individual can model for himself what his attitude of mind is about complicated topics, issues, or situations" (Stephenson, 1967, p. 5). Q methodology seeks to explain why and how preferences differ. Previous studies have used survey-based methods to identify individual's knowledge of agricultural terms used on food labels (Frick et al., 1995; McFadden &

Lusk, 2016; Cummins et al., 2018;). While these studies provide valuable information, they do not provide detailed information relating to consumers' values and perceptions of the label.

Q methodology provides a means to identify the various perspectives, while maintaining the individual's frame of reference (McKeown & Thomas, 2013; Watts & Stenner, 2012). Individuals express their point of view through the completion of a Q sort (McKeown & Thomas, 2013. Q methodology looks "to make discoveries rather than to test specified hypotheses" (Stephenson, 1967, p. 20). This study looks at the values and perspectives that lead mothers to look for or choose certain labels.

### **Participants**

The participants selected for the study, known as the P set, consisted of mothers between 18 and 50 years of age. The population was purposive and chosen due to mothers' having a greater awareness of food production practices. Participants were selected from individuals known to the researcher. Additional participants were recruited using the snowball method, as recommended by Watts and Stenner (2005), and through a recruitment e-mail. The final P set consisted of 33 mothers who met with the researcher in person at locations convenient to the participant.

Q methodology does not require a large sample size. Brown (1980) states the number of participants only needs to be large enough to establish the existence of a factor to compare one factor to another. Some researchers suggest the number of participants should be half the number of the items in the Q set; however, a smaller number is acceptable (McKeown & Thomas, 2013).

Q methodology uses theoretical or pragmatic considerations when selecting participants (McKeown & Thomas, 2013). Theoretical considerations include choosing individuals based on their beliefs or perspectives. Pragmatic consideration includes choosing those convenient to the researcher. Q methodology emphasizes the use of strategic selections, allowing for a smaller participant selection. Participants selection is purposive in that the researcher wants variations in opinion or ideas.

### **Instrument Development**

Q methodology begins with the development of the concourse of communication or a combination of all the perceptions related to a topic. In Q methodology, the concourse of communication represents the diversity of thoughts and opinions (McKeown & Thomas, 2013; Stephenson, 1953). In this study, the concourse included a hybrid sample of photos (N=218) stemming from both naturalistic and theoretical sources. Naturalistic sources include photos taken by the researcher. Theoretical sources include photos of food labels referenced in literature and electronic news sources.

Photos were grouped according to the homogeneity principle (Brown, 1980) and then selected to provide the greatest amount of difference between photos in each group based on the principle of heterogeneity (Brown, 1980). Photos were categorized into the following areas (Appendix C): production, processing, ingredients, production-processing, production-ingredients, processing-ingredients, and production-processing-ingredients. For example, photos listing “cage free” represents production, “BPA free liner” represents processing, and “good source of vitamins and minerals” represents ingredients. After selecting for heterogeneity, the resulting Q set consisted of 47 photos, known as Q statements (Appendix B).

The photos included in the final Q set were randomly numbered and individually placed on a card. A form board (Appendix D) was created with 11 columns labeled -5 to +5 on which participants were to sort the Q set on a continuum from “Most like me” to “Most unlike me” based on the condition of instruction: *“Which of these labels most reflect your values in grocery making decisions?”*

It is important to note in Q methodology, validity is not relevant as statements are based upon one’s own opinion (Brown, 1980; Watts & Stenner, 2012). However, reliability does play a role in Q methodology. If the participant were asked to re-sort the same set of statements, their sorts should be correlated (Brown, 1980; Watts & Stenner, 2012).

### **Data Collection and Procedures**

This research study was approved by the Institutional Review Board (IRB) on October 18, 2018. The IRB letter of approval for this study is included in Appendix A.

Upon approval, the researcher met with mothers at a time and place convenient to them. At the beginning of each meeting, the researcher explained the purpose of the research, provided the participant with an Information about the Study form (see Appendix E), and received verbal consent from the participant before proceeding with data collection. Data were collected using a Q sort activity and a demographic questionnaire. Participants received the 47 Q statements and a form board and asked to sort the statements based on the condition of instruction: *“Which of these labels most reflect your values in grocery decisions?”*

First, participants were asked to sort the statements into three piles, most like their values, most unlike their values, and neutral. Next, participants were asked to rank the

statement from most like (+5) to most unlike (-5) on the form board. Q methodology uses a forced choice procedure where participants must place a given number of statements in each column on the form board (McKeown & Thomas, 2013). Participants were asked to choose the two photos from the “most like” pile that were the most like their values and placed them in column 5 on the form board. Participants were then asked to choose the two photos from the “most unlike” pile that were the most unlike their values and place them in column -5 on the form board. Participants were instructed to continue the sorting procedure, moving back and forth from “most like” to “most unlike” until the middle was reached, or all the remaining spaces were filled. Once all photos, or Q statements, were used, participants were asked to review their form board and given the opportunity to make any changes until they felt their sort was complete. Once the sort was complete, the researcher asked participants to explain their values and priorities when grocery shopping. Participants were asked to use the numbers on each card and record their responses on the record sheet.

Participants were asked to complete a demographic survey located on the back of the record sheet. The option to provide a name or code name and a phone number for a follow-up interview was included at the end of the survey. The demographic survey is found in Appendix F. The demographic survey included questions related to the participants’ age, education level, the age groups of individuals for whom they purchased groceries, and the size of the city in which they live. Participants were instructed to answer the survey based on their perceptions. For example, the classifications of urban, suburban, and rural categories were not defined in the survey. Post-sort interviews, written comments, field notes, and demographic information are often used in Q

methodology for clarification in interpreting each factor array (Brown, 1980). Phone calls were made to four participants. The four participants were selected after data analysis as they were exemplars on each factor. Exemplars are those sorts with the highest and purest loading on each factor (Watts & Stenner, 2012).

### **Data Analysis**

Data were analyzed using PQ Method, a software program specifically for Q data analysis (PQ method, Version 2.35, 2014 by Peter Schmolck). Originally 27 sorts were analyzed, resulting in a three-factor solution. An additional six sorts were completed and analyzed to strengthen the third factor. A total of 33 Q sorts were analyzed. In Q methodology, factor analysis looks at the “relationship of each Q sort to every other sort” in the study (Watts & Stenner, 2012, p. 97). Factor analysis was conducted using principal components analysis (PCA) and varimax rotation for a three-factor solution.

### **Summary**

This chapter provided a rationale for using Q methodology. The instrument development, concourse and Q statements, form board and demographic survey were described in this chapter. The justification for participant selection and procedures in completing a Q study were provided. The chapter concluded with an introduction to the data analysis.

## CHAPTER IV

### FINDINGS

The purpose of this study was to describe mothers' values in their grocery making decisions using Q methodology. This chapter describes the demographics of the participants in order to help better understand the results. This chapter includes the interpretation of the factor arrays and interviews with participants.

#### **Participants**

The sample population for this study included mothers between the ages of 27 to 50. A total of 33 mothers sorted the photos used in this study. Out of 33 participants, one reported in demographic questioning that they have an associate degree, 15 have a bachelor's degree, 15 have a master's degree, and two have a doctorate degree. Of the 33 participants, nine reported they purchase foods for an infant, 20 purchase foods for toddlers, 17 purchase food for elementary students, four purchase food for teenagers, four purchase food for young adults, and 29 purchase food for adults.

## Factor Solutions

All sorts were entered into PQ Method 2.35, a software program designed to analyze data in Q methodology. In Q methodology, all sorts are correlated to all other sorts. Varimax rotation was used to identify the best fit of the data, resulting in a three-factor solution with a significance level of 0.47. The correlations between factor scores of defining sorts ranged from -0.01 to 0.42, indicating that the solution represents three diverse points of view related to mothers' values in their grocery decisions. The correlations are shown in Table 1.

Table 1  
*Correlation of Factor Scores*

	Factor 1	Factor 2	Factor 3
Factor 1	1.0000		
Factor 2	0.2648	1.0000	
Factor 3	-0.0101	0.4186	1.0000

The Q sorts of all participants that load significantly on a single factor represent a model Q sort, called the factor array (Brown, 1980; Watts & Stenner, 2005). A factor array is one Q sort used to model the viewpoints or perceptions of a single factor. The standard error was calculated using the equation  $SE = (1/\sqrt{N})$  where  $N$  = the number of Q statements (Watts & Stenner, 2012). This study used 47 Q statements, therefore the standard error is  $SE = 1/\sqrt{47} = 0.15$ . The significance level is calculated as  $2.58 * (1/\sqrt{N})$ . Brown (1980) states those factor loadings greater than  $2.58 (SE) = +/- 0.33$  are significant at the 0.01 level. For this study, this would lead to a significance level of 0.38. However,

the significance level was increased to 0.47 to capture a greater number of sorts, strengthening each factor.

The 33 sorts resulted in 29 factor loadings for a three-factor solution, as shown in Table 2. The final statistical procedure is the calculation of standard scores for each statement in each factor array. The statements in each array were ordered by z-score from (-5) to (5) for interpretation.

Those sorts that reached a significance level of 0.47 on more than one factor is a confounded sort (Watts & Stenner, 2012). Three sorts were identified as confounds, meaning they achieved significance on more than one array (Watts & Stenner, 2012). Confounded sorts are not included in developing the factor arrays. One sort was identified as non-significant as it did not achieve significance on any factor array.

After data were analyzed, post-sort interviews were conducted with the exemplar on each factor array to gather qualitative data. Exemplars are those sorters with the highest and purest loading on a factor (Watts & Stenner, 2005). Profiles for each array were developed using statistical analysis, field notes, demographic information, and post-sort interviews to represent the mothers' values in their grocery making decisions.

Table 2

*Factor Matrix Showing Defining Sorts*

<b>Q Sort</b>	<b>Age Groups of People</b>	<b>Factor 1</b>	<b>Factor 2</b>	<b>Factor 3</b>
1	Toddler – Adult	<b>0.7095X</b>	0.0466	0.2350
2	Infant – Adult	<b>0.8002X*</b>	-0.0662	-0.2475
3	Adult	<b>0.7983X</b>	0.2122	0.1113
5	Toddler – Elementary – Adult	<b>0.6005X</b>	0.3745	-0.2805

7	7 Toddler – Adult	<b>0.7477X</b>	0.3578	0.1568
11	Infant – Toddler – Elementary – Adult	<b>0.6379X</b>	0.2571	0.3215
12	Elementary – Adult	<b>0.5523X</b>	0.2453	0.2120
13	Infant-Toddler-Adult	<b>0.8367X*</b>	0.1808	-0.2154
17	Toddler – Elementary – Adult	<b>0.7980X</b>	0.2296	0.0255
20	Toddler – Adult	<b>0.8273X</b>	0.0759	-0.2361
22	Toddler – Adult	<b>0.7613X</b>	-0.0395	0.0679
23	Infant – Elementary – Adult	<b>0.8100X</b>	-0.0523	-0.1528
25	Toddler - Elementary – Adult	<b>0.4699X</b>	-0.1142	0.2079
29	Elementary – Young Adult	<b>0.5934X</b>	0.2992	-0.3025
6	Infant – Elementary - Adult	0.2795	<b>0.5926X</b>	0.1469
8	Elementary – Adult	0.0179	<b>0.6431X</b>	0.3627
9	Toddler – Young Adult	0.1694	<b>0.6608X</b>	-0.0595
16	Toddler – Adult	0.2143	<b>0.5846X</b>	0.3606
19	Toddler – Adult	0.0828	<b>0.5982X</b>	0.0695
21	Toddler – Elementary – Adult	0.4248	<b>0.5892X</b>	0.1289
26	Infant – Toddler – Elementary – Adult	-0.0791	<b>0.6204X</b>	0.4494
27	Infant – Toddler – Elementary – Adult	-0.2732	<b>0.4665X</b>	0.2359

28	Young adult – Adult	-0.0147	<b>0.7914X*</b>	0.0067
32	Infant – Toddler – Adult	0.0190	<b>0.7209X</b>	0.0452
10	Toddler – Adult	0.1459	0.4631	<b>0.6384X</b>
14	Infant – Adult	0.0834	0.0019	<b>0.7779X*</b>
18	Toddler – Elementary – Adult	0.1003	0.1121	<b>0.7415X</b>
30	Elementary – Teenager – Adult	0.1332	0.2471	<b>0.5986X</b>
33	Toddler – Elementary – Adult	-0.2444	0.1973	<b>0.6589X</b>
15	Elementary – Teenager – Adult	0.5160	0.5479	-0.0746
24	Toddler – Elementary – Adult	0.2900	0.4595	0.0886
31	Toddler –Adult	-0.3572	0.2832	-0.3213
4	Toddler – Adult	0.5700	0.5258	0.1278
<hr/>				
Defining Sorts	Total: 29	14	10	5
Explained Variance	Total: 55%	26	18	11

*Note.* X indicates a defining sort for the factor. \* Indicates an exemplar sort

### Interpretations of Perspectives

Three distinct perspectives describe the values of the mothers in this study when making grocery making decisions: the *Healthy Aware Mom*, the *Healthy Avoider Mom*, and the *Healthy Holistic Mom*.

#### Factor Array 1 - The Healthy Aware Mom

Fourteen sorts (or 26% of the variance) defined the Healthy Aware Mom perspective. Mothers included in this perspective were between 27 and 50 years of age. Those sorters who defined the Healthy Aware Mom perspective reported purchasing foods for people in the following age groups: infants, toddlers, elementary school, teenagers, young adults, and adults. Three of the 14 sorters reported they are from an urban area, five from a suburban area, and six from a rural area.

A composite sort of the Healthy Aware Mom is represented in Figure 1. As indicated by the red squares, the Healthy Aware Mom values what they perceive as healthy ingredients, such as vitamins and minerals. Labels describing the production practices are not valued by the Healthy Aware Mom as they are placed on the “*most unlike me*” side of the form board. The Healthy Aware Mom also values labels that indicate an absence of what they perceive to be less healthy ingredients, such as dyes or oils which may be added during the processing phase, as represented by the purple squares.

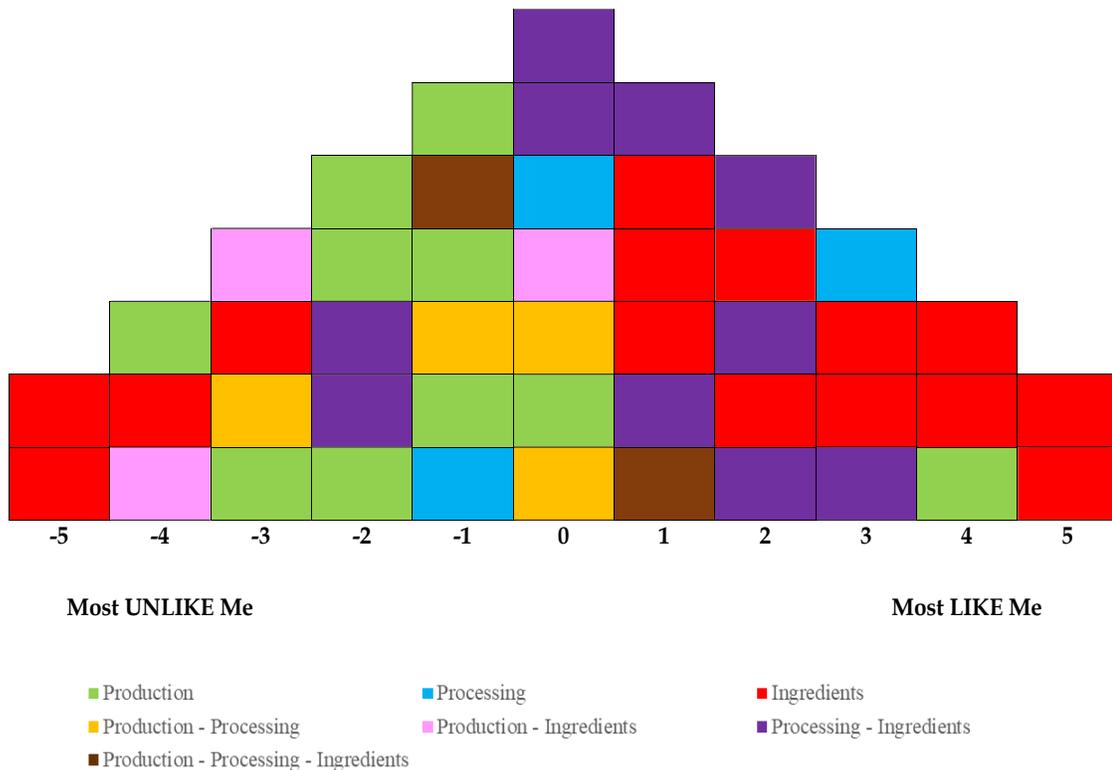
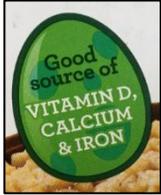


Figure 1. The Healthy Aware Mom composite sort by Q sample grouping

The Healthy Aware Mom is familiar with agricultural practices and seeks to purchase foods with healthy nutrients. The Healthy Aware Mom looks for products showing specific vitamins and minerals were added to represent a healthy product. Products with labels showing they do not have production additives are not a priority. The Healthy Aware Mom does not look for foods that follow specific diets, such as gluten free or vegan. The following conceptual themes were identified in support of this perspective: vitamins and minerals lead to a healthy diet, healthy tick marks and organization are key in product choice, support of the American farmer, and personal experience with livestock production practices. The highest positive and negative statements for the Healthy Aware Mom are shown in Table 3.

Table 3

*Highest Positive and Negative Statements for (+5 to +4, -4 to -5) the Healthy Aware Mom*

No.	Statement		Array Position	Z-Score
35*		Good source vitamin and minerals	+5	1.684
45*		Vit D calcium iron	+5	1.609
41*		Vitamin C	+4	1.495
43		No sugar added	+4	1.453
10*		Family owned	+4	1.426
19*		Non GMO verified	-4	-1.222
34		Kosher	-4	-1.382

8*		No antibiotics	-4	-1.505
33*		No nasties	-5	-1.723
36#		Vegan	-5	-1.802

*Note.* \* = distinguishing statement, # = consensus statement

One of the concepts to understand this viewpoint is the value of listing added vitamins and minerals representing healthy choices. For the Healthy Aware Mom, labels indicating added vitamins and minerals represent a healthier product. The Healthy Aware Mom looks for labels providing specific information showing which vitamins and minerals were added to the product. Specifically, followers of this perspective have a clear preference for labels that market the product as a “good source” of various vitamins and minerals. While these moms value a nutritious diet, they are likely not tracking their vitamin and mineral intake. Rather they rely on specific references to vitamins and minerals as an informal indicator of a balanced diet. The statements in Table 4 describe the Healthy Aware Mom’s preference for choosing products with good or excellent sources of vitamins and minerals.

Table 4

*Statements Representing Vitamins and Minerals as Healthy Choices*

Statement No.	Statement	Array Position
35.		Good source vit and min (+5)
45.		Vit D calcium iron (+5)
41.		Vitamin C (+4)
40.		Fiber (+3)

While sorting, Sorter 17 stated, “Vitamins and minerals gets me, I try to fit those in everywhere I can.” In a post sort interview, Sorter 13 stated, “We need vitamins and minerals in our diets, and I don’t track that enough to know if we’re getting enough, so surely some extra wouldn’t hurt.”

The second concept to support this viewpoint is the support of American agriculture. The Healthy Aware Mom places trust in US agriculture and believes it is important to support American farmers. The US Department of Agriculture (USDA) is a source of information and works to keep the food system safe. The Healthy Aware Mom places value in supporting family and local farms. The USDA is seen as a positive source

of information and is responsible for maintaining a safe food supply. When grocery shopping, the Healthy Aware Mom values products produced and grown in the U.S. While sorting, Sorter 20 stated, “We all need to look for and make sure we are buying fruit, vegetables, and meat from the U.S. The USDA has good restrictions whereas others don’t.” After sorting, Sorter 23 stated, “We need to keep our products here (U.S.). You should always support a local farmer if you can.” After sorting, Sorter 29 stated, “If the ag department approves it, it’s probably good.” The statements in Table 5 represent the Healthy Aware Mom’s support of American agriculture.

Table 5

*Statements Representing the Support of American Agriculture*

Statement No.	Statement	Array Position
10.		Family owned (+4)
20.		U.S. inspected (+3)
12.		Made in USA (+3)
11.		Locally grown (+2)

The third concept to represent this viewpoint is the Healthy Aware Mom's personal experience with livestock production. The Healthy Aware Mom has first-hand experience with livestock production and farming practices. Those that did not grow up on a farm, have close relationships with farmers or people working in the agriculture industry. The Healthy Aware Mom turns to these people when they have questions about how their food was produced. They do not have concerns for production practices as they are familiar with the science behind them. The Healthy Aware Mom is not concerned about the presence of additives in products. Therefore, labels listing *no hormones* or *no rBGH* are not a priority for this group. Additionally, these moms may be less trusting of production labels and view them less as a source of information regarding ingredients and more of a marketing tactic. Animal welfare labels are not a high priority, as the Healthy Aware Mom is familiar with animal handling and housing systems.

After sorting, Sorter 3 stated, "We raise livestock, mainly cattle, so I know how our food is produced and what is or is not in it." After sorting, Sorter 22 stated, "Obviously I'm not for poor treatment, but I understand a little bit more and how some expectations are unrealistic. My dad is a beef farmer. He tells me things they do on the farm, like using hormones, are better. He says even people have hormone treatments. He says animals can really suffer without antibiotics." After sorting, Sorter 25 stated, "I don't look for animal welfare, but I'm good friends with the head of animal welfare at OSU and I've learned how animals are treated. Sometimes we have to have animal testing that's just how it is." In a post-sort interview, Sorter 2 stated, "I have been around ag and know the majority of farmers treat their animals humanely. In my opinion, adding a label like that is just a marketing ploy and not actually indicative of how healthy the

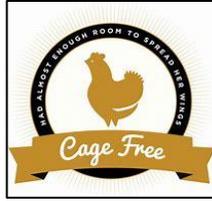
food is.” The statements in Table 6 represent the *Health Aware Mom*’s personal experience with livestock production.

Table 6

*Statements Representing Personal Experience with Livestock Production*

Statement No.	Statement		Array Position
8.		No antibiotics	(-4)
15.		Certified humane Raised	(-3)
4.		rBGH free	(-3)
1.		Global animal health	(-2)
6.		No hormones	(-2)

3.



Cage free

(-1)

The last concept to represent this viewpoint is the addition of healthy tick marks on packages, which represent a more nutritious food. The Healthy Aware Mom places trust in products that meet organizations nutritional standards, such as the American Heart Association. While labels with positive messages, such as “live well” or “great for you” do not provide specifics information on how the product is more nutritious, they are viewed as healthy indicators. The Healthy Aware Mom works to avoid added sugar whenever possible, as their children already have enough sugar in their diet. They value the label, “Made with Real Fruit”, as it represents another way for their children to meet their daily servings of fruit. While sorting, Sorter 5 stated, “Great for you is something I see on my bananas all the time.” After sorting, Sorter 20 stated, “Great for you reminds me a lot USDA’s MyPlate. It is showing you good sources of food.” The statements below represent the Healthy Aware Mom’s belief in healthy tick marks. After sorting, Sorter 12 stated, “Eat well, live well” is nice to see, but it doesn’t tell me anything”. After sorting, Sorter 23 stated, “We buy real fruit if we can find it. My kids will pick cereal with dried fruit over sugar cereal.” The statements in Table 7 represent the Healthy Aware Mom trust in healthy indicators.

Table 7

*Statements Representing Beliefs in Healthy Tick Marks*

Statement No.	Statement	Array Position
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43.		No sugar added	(+4)
27.		Made with real fruit	(+2)
39.		American heart	(+2)
38.		Eat well live well	(+1)
42.		Great for you	(+1)

### Factor Array 2 – The Healthy Avider Mom

Ten sorts, or 26% of the variance, defined the Healthy Avider Mom perspective. Mothers were between 31 and 50 years of age. Those who defined the Healthy Avider Mom perspective purchase food for the following groups of people: infants, toddlers, elementary school, young adults, and adults. Two of the ten sorters reported they are from an urban area, six from a suburban area, and two from a rural area. A composite sort of the Healthy Avider Mom is represented in Figure 2. The Healthy Avider Mom

works to avoid perceived negative ingredients, but include perceived positive ingredients. Perceived negative ingredients include dyes or chemicals as indicated by the purple and green squares on the “most like me” side of the form board. Perceived positive ingredients include added vitamins and minerals shown by the red squares on the “most like me” side of the form board.

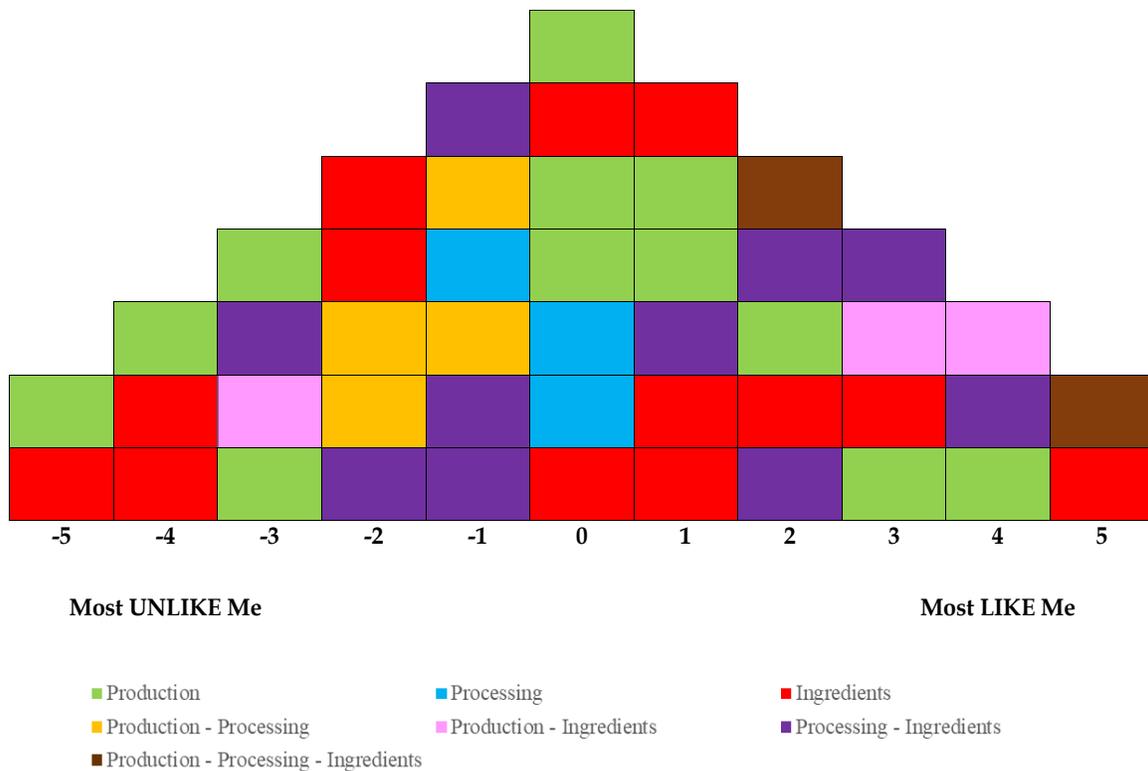


Figure 2. The Healthy Avoider Mom composite sort by Q sample group

The Healthy Avoider Mom is cautious of agricultural production methods and ingredients but still places emphasis on nutritious sayings in order to make healthy choices. The Healthy Avoider Mom values natural products. They look for labels with the word “no” or “without” in order to avoid ingredients that may be harmful. These may

be added during the production or processing phases. The Healthy Avoider Mom wants to avoid additives that alter the color or shelf-life of a product. However, the Healthy Avoider Mom does place a value on added vitamins and minerals as they are seen as a healthy additive. The following conceptual themes were identified in support of this perspective: cautious of agricultural production methods, the consideration of healthy additives, and avoiding artificial additives. The highest positive and negative statements are shown in Table 8.

Table 8

*Highest Positive and Negative Statements for (+5 to +4, -4 to -5) The Healthy Avoider Mom*

No.	Statement	Array Position	Z-Score
46		USDA organic	+5 1.551
43		No sugar added	+5 1.464
17		Organic is non GMO	+4 1.383
25		No preservatives	+4 1.314

6*		No hormones	+4	1.311
9		Happy certified	-4	-1.091
36#		Vegan	-4	-1.473
37		Gluten free	-4	-1.650
2*		Direct sourcing	-5	-1.716
34*		Kosher	-5	-2.188

*Note.* \* = distinguishing statement, # = consensus statement

One of the concepts to understand this viewpoint the Healthy Avoider Mom is skeptical of agricultural production methods. The Healthy Avoider Mom is cautious of agricultural production methods. The Healthy Avoider Mom values labels with the words “no” or “without.” This may include labels showing the product is made with “no

antibiotics” or “no hormones.” They also look for products labeled “non GMO.” While the Healthy Avoider Mom seeks to avoid certain additives, this is not a full-on ban. They will seek out foods that list added vitamins and minerals, for example, as they value the role of these nutrients in a balanced diet. The organic label is valued as it represents a product free from additives or chemicals that may increase health risks. The Healthy Avoider Mom believes cage free eggs are produced using healthier practices which also allow for a happier animal. The Healthy Avoider Mom often limits the amount of meat they eat in their household in order to avoid any additives that may have a negative impact on their health.

After sorting, Sorter 27 stated, “I do like my chicken with no hormones, that’s a big one when buying chicken. I don’t think doctors know the effects of hormones, they don’t have backing.” After sorting, Sorter 28 stated, “I try to buy organic, non-hormone or free-range things due to the effect of hormones on people eating meat.” In a post sort interview, Sorter 28 went on to say, “I don’t eat any red meat. Meat I buy has to be antibiotic free.” After sorting, Sorter 32 stated, “You can tell non-organic is bad for you based on the way you feel.” The statements in Table 9 below describe the Healthy Avoider Mom’s preference for avoiding production additives.

Table 9

*Statements Representing Skepticism of Agricultural Production Methods*

Statement No.	Statement	Array Position
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46.		USDA organic	(+5)
17.		Organic is non GMO	(+4)
6.		No hormones	(+4)
19.		Non GMO Verified	(+3)
3.		Cage free	(+3)
8.		No antibiotics	(+2)

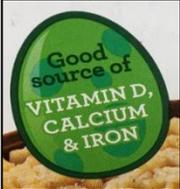
A second concept to understand this viewpoint is the consideration of healthy additives. The Healthy Avoider Mom works to purchase foods they perceive to be healthier. Labels indicating added vitamins or minerals represent a healthy, more

nutritious option when purchasing food for their children. The Healthy Avoider Mom consumes large amounts of grain in their diets. Therefore, products containing 100% whole wheat or whole grain are perceived to be healthier than enriched foods. The Healthy Avoider Mom places a value in meeting the proper number of servings for whole grains, vitamins and minerals. This also includes labels stating the amount of nutrients per serving size of the product.

After sorting, Sorter 19 stated, “I have a chart on my fridge for (my daughter) of how many servings she needs for vitamins and minerals. So things like whole wheat or added vitamins and minerals help since we do not eat a lot of meat.” After sorting, Sorter 28 stated, “I always buy whole grain or multi-grain. I hear it is more healthy.” After sorting, Sorter 9 stated, “I eat a lot of grains so if it can be brown rice or whole grains that’s better.” The statements in Table 10 represent the Healthy Avoider Mom’s choice for healthy additives.

Table 10

*Statements Representing the Consideration of Healthy Additives*

Statement No.	Statement	Array Position
23.		Whole grain (+3)
45.		Vit D calcium iron (+2)

30.		Whole wheat	(+2)
35.		Good source vit and min	(+1)
27.		Made with real fruit	(+1)
41.		Vitamin C	(+1)

A third concept to understand this viewpoint is the practice of avoiding artificial additives. The Healthy Avoider Mom is cautious of the processing techniques used in producing food. The Healthy Avoider Mom does not want their children to consume products with artificial dyes, colors, or preservatives. They value naturally produced products as they believe artificial coloring may have an effect on health and behavior. The Healthy Avoider Mom believes foods that are altered during processing may lose some of their natural nutritional value. Additionally, the Healthy Avoider Mom wants to avoid added sugar in their children’s diet.

After sorting, Sorter 9 stated, “How my food is processed is more of an issue for me.” After sorting, Sorter 27 stated, “Dyes in foods can trigger certain behaviors. It made

me act up. I wasn't allowed to have it growing up. No fruit punch for my kids." After sorting, Sorter 21 stated, "I want it to be something that's actually the real food, such as no preservatives." After sorting, Sorter 19 stated, "The word 'white' I associate with bread where all of the nutrients are taken out," in reference to statement 24. Sorter 21 later stated, "I've been more conscious of sugar. I have a huge sugar addiction and I'm trying for it not to rub off on my kids." The statements in Table 11 represent the Healthy Avoider Mom's desire to avoid artificial additives.

Table 11

*Statements Representing Artificial Additives*

Statement No.	Statement		Array Position
43.		No sugar added	(+5)
25.		No preservatives	(+4)
28.		No colors	(+2)
24.		Whitened without Bleach	(-3)

### **Factor Array 3 – The Healthy Holistic Mom**

Five sorts, or 11% of the variance, defined the Healthy Holistic Mom perspective. Mothers were between 31 and 38 years of age. The ages of children varied among the sorters in this perspective, with one having infants, three having toddlers, three elementary age, and one with teenagers. Three of the five sorters reported they are from an urban area, with two from a suburban area.

Figure 3 represents a composite sort for the Healthy Holistic Mom. The Healthy Holistic Mom looks for information on how the product was produced as shown by the squares in green. Labels providing information related to ingredients, as shown in red, are not valued by the Healthy Holistic Mom as they were placed on the “*most unlike me*” side of the form board. The Healthy Holistic Mom does look to avoid certain perceived negative ingredients which may be added during the production or processing phase as indicated on the “*most like me*” side of the form board.

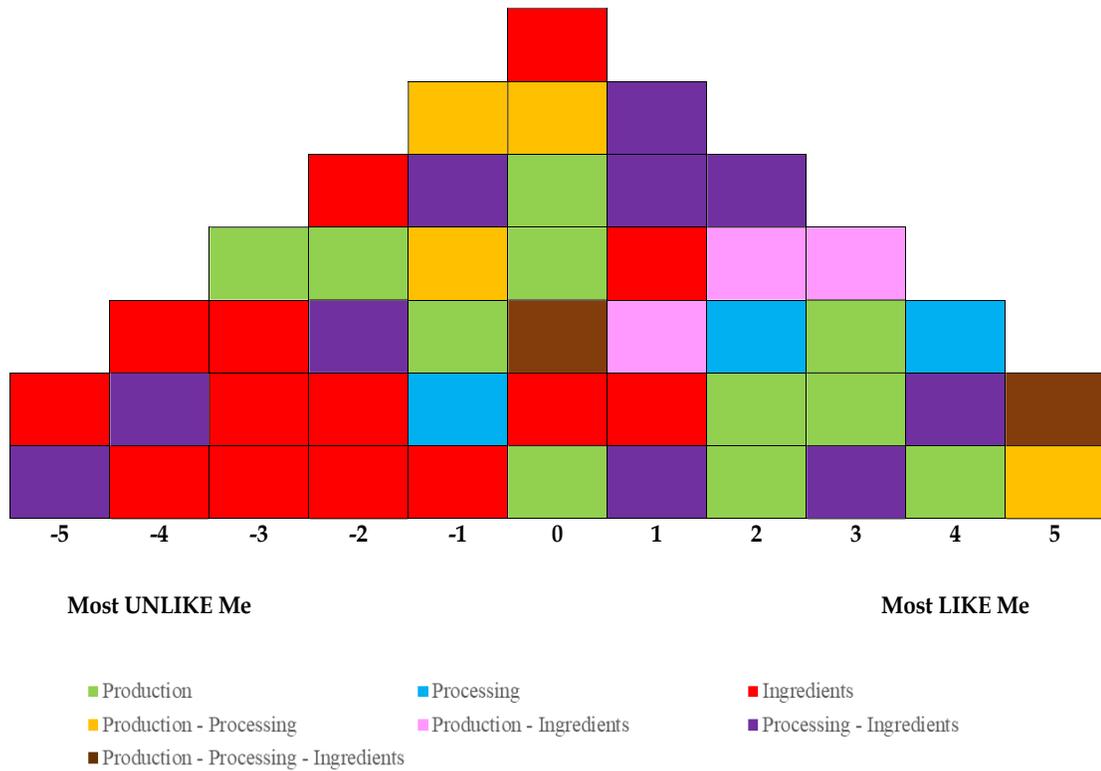


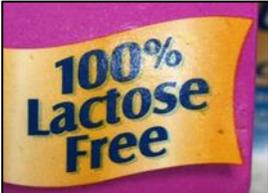
Figure 3. The Healthy Holistic Mom composite sort by Q sample group

The Healthy Holistic Mom is aware of who produces their food and the steps taken to produce their food. When locally produced products are not available, the Healthy Holistic Mom wants labels providing information on where and how the product was produced. The Healthy Holistic Mom is cautious of the materials used to produce food and their effects on the body. General nutrition labels or sayings do not influence the Healthy Holistic Mom as they do not provide specific information related to the product. The Healthy Holistic Mom looks at health effects across the entire supply chain. The following conceptual themes were identified in support of this perspective: forming relationships with producers, avoiding processed foods, and awareness of what goes into their bodies. The highest positive and negative statements are shown in Table 12.

Table 12

*Highest Positive and Negative Statements for (+5 to +4, -4 to -5) the Healthy Holistic Mom*

No.	Statement		Array Position	Z-Score
46		USDA organic	+5	1.962
13*		Wild caught	+5	1.634
21*		BPA liner free	+4	1.561
28		No colors	+4	1.522
11		Locally grown	+4	1.518
34		Kosher	-4	-1.411
32*		Enriched bread	-4	-1.484

37		Gluten free	-4	-1.502
42*		Great for you	-5	-1.596
26*		Lactose free	-5	-2.041

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*Note.* \* = distinguishing statement, # = consensus statement

One of the concepts to support this viewpoint is the value of forming relationships with producers. The Healthy Holistic Mom wants to know where and how their food was produced. They believe production labels can have various meanings and not provide enough information on where the product was produced. However, the Healthy Holistic Mom may look for labels such as “Wild Caught, Sustainably Sourced,” which are backed by strict guidelines or certification programs. The Healthy Holistic Mom places value in shopping at farmer’s markets or purchasing products directly from the farmer.

After sorting, Sorter 18 stated, “If a ‘local grown’ label is on something in the grocery store it could mean hundreds of miles away. It is more of a value if I know who grew it and how they grew it. I look to farmers I have a relationship with.” After sorting, Sorter 30 stated, “I know fish is coming from a region it’s supposed to. For example, salmon from a farm at the equator is not good, it is a cold-water fish.” Sorter 18 also stated, “This label is a good source because I don’t have fish friends, I can get info from.”

In a post sort interview, Sorter 14 stated, “I buy my meat directly from farmers and I try to buy produce at farmers markets when available.” The statements in Table 13 describe the Healthy Holistic Mom’s desire to form relationships with farmers are listed below.

Table 13

*Statements Representing Relationships with Producers*

Statement No.	Statement	Array Position
13.		Wild caught (+5)
11.		Locally grown (+4)
10.		Family owned (+2)

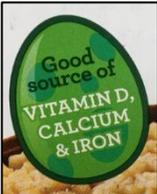
The second concept to support this viewpoint is avoiding added ingredients. When grocery shopping, the Healthy Holistic Mom does not purchase enriched or processed foods. The Healthy Holistic Mom uses the ingredient list as a source of information rather than food labels. Foods with added colors, dyes, or preservatives are viewed as unhealthy. The Healthy Holistic Mom does not place value on added vitamins and minerals as they are already consuming foods with enough vitamins and minerals to meet their needs. After sorting, Sorter 18 stated, “I purposely avoid enriched things. It is a general rule if something has to tell you why it’s healthy then it’s probably not.” After

sorting, Sorter 10 stated, “I prefer foods that are natural. They are not processed or fortified.” The statements in Table 14 describe the Healthy Holistic Mom’s desire for avoiding enriched foods.

Table 14

*Statements Representing Added Ingredients*

Statement No.	Statement		Array Position
28.		No colors	(+4)
31.		No hydrogenated oils	(+3)
25.		No preservatives	(+2)
43.		No sugar added	(+1)
29.		No HFCS	(-1)
35.		Good source vit and min	(-2)

40.		Fiber	(-2)
27.		Made with real fruit	(-2)
41.		Vitamin C	(-2)
45.		Vit D calcium iron	(-3)
32.		Enriched bread	(-4)

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Awareness of what goes into the body is the last concept to support this viewpoint. The Healthy Holistic Mom is cautious of production and processing additives and their effect on the body. This may include additives in both food and cosmetics. They look for labels showing the product is free from production additives, such as growth hormones and pesticides. In addition to foods and cosmetics, the Healthy Holistic Mom looks at the materials used to package foods as they may also have an effect on the body. The Healthy Holistic Mom places a value on organic products as they are free from chemicals and additives.

After sorting, Sorter 33 stated, “I feel like our endocrine system is already taxed by hormones in other product. I do pay attention to parabens. I use natural cosmetic products, but they aren’t vegan due to lanolin. I’m more cautious of cosmetics, like deodorant, I don’t want additives near my breasts, it could lead to breast cancer.” After sorting, Sorter 30 stated, “Grass fed and rBGH free is important to me to avoid added hormones, as they can lead to early onset puberty.” In a post sort interview, Sorter 14 stated, “It’s important to me to do what I can to keep myself and my family safe from negative side effects linked to some products. This includes ingesting increased adrenaline from animals stressed prior to slaughter and ingesting chemicals linked to disease.” The Healthy Holistic Mom is aware of chemicals that may come into contact with different products. After sorting, Sorter 14 stated, “I buy organic because of my daughter. I want her to have clean, healthy food.” While sorting, Sorter 10 stated, “I do look for BPA free. Kids put everything in their mouths.” The statements Table 15 describe the Healthy Holistic Mom’s beliefs towards additives in various products.

Table 15

*Statements Representing Awareness of What Goes into the Body*

Statement No.	Statement	Array Position
46.		USDA organic (+5)
21.		BPA liner free (+4)

5.		Grass fed	(+3)
4.		rBGH free	(+3)
6.		No hormones	(+2)

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### Consensus Statements

Consensus statements are those statements with a similar z-score among all three factor arrays. Four consensus statements were identified from the findings. Consensus statements show an agreement or shared meaning among respondents whose sorts define each factor. While a statement may fall in an area of neutrality or stronger opinion, the meaning of each statement may differ among each factor array or perception. The four consensus statements for this study with array position and z-score, are shown in Table 16.

Table 16

#### *Consensus Statements*

No.	Q Statement	Factor 1		Factor 2		Factor 3	
		Array	Z-Score	Array	Z-Score	Array	Z-Score

1*		-2	-0.78	-3	-0.94	-2	-0.81
14		0	-0.76	-1	-0.56	-1	-0.09
16		-1	-0.64	-2	-0.80	-1	-0.24
36*		-5	-1.80	-4	-1.47	-3	-1.40

*Note.* Consensus statements are those statements which do not distinguish between any pair of factors. All listed statements are non-significant at  $p > .01$  and those flagged with an \* are also non-significant at  $p > .05$

Animal welfare was a neutral topic amongst participants. This is shown by two of the consensus statements, the “Global Animal Partnership” label and the “Animal Welfare Certified” label. The Healthy Aware Mom is not concerned with animal welfare as they have first-hand experience with livestock production and handling techniques. They believe animal welfare labels are used as a marketing ploy and often give repetitive information. After sorting, Sorter 13 stated, “This is just asking more money for the same thing,” in relation to statement one. The Healthy Avoider Mom is cautious of the animal products they consume. They either do not eat meat or only eat certain meat products, therefore, animal welfare does not have a high impact on their purchasing decisions.

After sorting, Sorter 32 stated, “Animal welfare does not apply, but if I purchased more meat it would.” Animal welfare labels do not provide enough information for the Healthy Holistic Mom. The Healthy Holistic Mom seeks information by forming relationships with the farmer.

The second consensus statement, statement 14, is related to environmental awareness. The Healthy Aware Mom has first-hand agricultural experience. They believe the production methods being used to raise livestock and grow crops is safe for the environment. The Healthy Avoider Mom is cautious of production practices and their effect, not on their family’s health. The Healthy Holistic Mom is concerned for the effect of the environment at all stages. They want information on how the product may influence the farm, their family, and the environment.

The majority of mothers in this study agreed vegan products are not a priority in their grocery shopping purchases. The Healthy Aware Mom does not purchase vegan products as they do not have any diet restrictions and do not place a value in avoiding animal products. The Healthy Avoider Mom does not place a high value on vegan products, but those who limit meat in their diet may look for this label when looking for alternatives. The Healthy Holistic Mom does not trust a vegan label as they want more information on what is in the product. They are often skeptical of what labels have to tell you and why a product is healthy or falls into a specific category. After sorting, Sorter 18 stated, “Vegan doesn’t apply to me. I may actually be worried if I saw this label depending on the product. Why should they need to tell me it’s vegan?”

## **Summary**

This chapter presented data collected from participants' sorts which resulted in a three-factor solution. The study identified three perspectives of mothers in their grocery shopping decisions: the Healthy Aware Mom, the Healthy Avoider Mom, and the Healthy Holistic Mom. This chapter also identified and explained four consensus statements found in this study.

## CHAPTER V

### SUMMARY, CONCLUSIONS, AND IMPLICATIONS

#### **Conclusions**

In the 1960s, William Stephenson began to look at how individual's interaction with media and entertainment help shape their own beliefs and perceptions. Stephenson's convergent selectivity, an element of play theory, refers to an individual's freedom to make choices for themselves. Convergent selectivity often begins with advertising that uses communication to help individuals identify or picture themselves using a product.

Q methodology, a measurement of subjectivity, was used in this study to identify mothers' values and perceptions of food values in their grocery making decisions. There is limited research regarding how consumers value food labels in their grocery making decisions.

The instrument used for this Q method study includes a hybrid Q sample composed of photos of food labels taken by the researcher and food labels addressed in the literature. The population sample for this study, called the P set, was purposive. Thirty-three sorts were completed for this study. All sorts were entered into PQMethod version 2.35, a software designed for Q methodology. Principal component analysis and varimax rotation were used to identify a three-factor solution. This study found three

distinct perspectives of mothers' values in their grocery making decisions: the Healthy Aware Mom; the Healthy Avoider Mom; and the Healthy Holistic Mom. Additionally, four consensus statements were found.

The following discussion includes recommendations for theory, practice, and further research as related to the three perspectives found in this study. Stephenson's (1967) concept of convergent selectivity, including communication pleasure, can be used to further describe the three perspectives amongst mothers in their values of food labels and grocery making decisions. The framework of advertising messages, as portrayed in the news and media, is targeted towards the characteristics of different groups or values in a population.

### **Summary of the Findings**

Followers of the Healthy Aware Mom *perspective* believe many food labels are used as marketing tactics. In a post-sort interview, Sorter 2 stated, "In my opinion, adding a label like that is just a marketing ploy and not actually indicative of how healthy the food is." However, in practical use, these moms use the labels as a means to identify foods with what they perceive as healthy additives. The Healthy Aware Mom has first-hand agricultural experiences, whether it is from growing up on a farm, currently living on a farm, or working in agriculture. After sorting, Sorter 3 stated, "We raise livestock, mainly cattle, so I know how our food is produced and what is or is not in it." Additionally, these moms tend to be trusting of government and organizational

certifications, such as the USDA and the American Heart Association. After sorting, Sorter 29 stated, “If the ag department approves it, it’s probably good.”

The Healthy Avoider Mom uses food labels to avoid what they perceive as negative attributes, such as dyes and preservatives. However, like the Healthy Aware Mom, they rely on labels to seek out what they perceive as positive additives, including vitamins and minerals. While the Healthy Aware Mom adds vitamins and minerals whenever they are available, the Healthy Avoider Mom tracks the amount of vitamins and minerals in the diet on a daily basis to prevent an over consumption. Additionally, they look to labels for information regarding production methods, including the use of added hormones, antibiotics or GMOs. The Healthy Avoider Mom is unsure of the long-term effects of added chemicals, antibiotics, and hormones on people’s health. After sorting, Sorter 27 stated, “...I don’t think doctors know the effects of hormones, they don’t have backing.” Followers of the Healthy Avoider Mom perspective reported living in a variety of backgrounds, from rural to urban settings.

The Healthy Holistic Mom also uses food labels to avoid perceived negative attributes, including added colors, preservatives, hydrogenated oils. Essentially, followers of this perspective use labels to determine if a food product is processed. The Healthy Holistic Mom is concerned with the entire food production cycle, including production, health and environmental effects. Additionally, the Healthy Holistic Mom’s concern extends beyond the food product itself to cosmetics and packaging. They look not only at the product’s immediate effect on their family, but also the long-term effects on the system as a whole. The Health Holistic Mom identifies with advertisements or labels such as *Wild Caught*, *Sustainably Sourced* which focus on the system as whole.

Consumers use information and advertisements related to food labels to choose products in the grocery store that align with their values. For example, The Healthy Aware Mom values labels showing an added source of vitamins and minerals or a food label indicating a *healthy* product. The Healthy Aware Mom is familiar with agricultural practices; therefore, they do not place a value in most production labels. The Healthy Aware Mom is likely to choose a product without any production labels on the package. While the Healthy Avoider Mom is skeptical of agricultural practices, they still value food labels representing nutritional value. Unlike the Healthy Aware Mom, the Healthy Avoider Mom looks to purchase products with production labels on the package. The Healthy Holistic Mom places value in purchasing food products directly from the producer whose production practices align with their values. Unlike the Healthy Aware Mom and the Healthy Avoider Mom, the Healthy Holistic Mom does not look for labels representing nutritional value, as they believe their children are meeting their nutritional requirements from the foods they eat.

### **Practical Implications and Recommendations for Theory**

The perspectives found in this study support Stephenson's (1967) concepts of convergent selectivity and communication pleasure. Consumers identify with different advertising messages based on their beliefs and values. Packard (1957) and Stephenson (1967) discussed how consumers purchase products in that they can identify with and picture themselves within the advertising message. Packard and Stephenson used the example of two soaps and how they may both remove dirt for a similar price. However, one soap served as luxury item while the other was simply noted for its ability to get consumers clean. This same example applies to the Healthy Aware Mom, the Healthy

Avoider *Mom* and the Healthy Holistic Mom. The Healthy Aware Mom would be interested in purchasing the soap that removes dirt for a reasonable price as it “gets the job done”. The Healthy Avoider Mom may be interested in the luxurious soap if they see any negative additives associated with another product, but in the end their primary concern is being clean. The Healthy Holistic Mom would be interested in soap marketed as a luxurious item. For the Healthy Holistic Mom, the luxurious soap may be seen as an item that has added benefits in relation to health and the environment. This may even be a product made by a local community member and sold at a farmer’s market.

As an example, advertising and purchasing various brands or types of macaroni and cheese falls in line with the concept of convergent selectivity. When grocery shopping, the Healthy Aware Mom would be likely to purchase a box of macaroni and cheese with the label “good source of calcium” or “added vitamin D” as they believe products with added positive ingredients are healthier. While the Healthy Avoider Mom looks for labels with positive ingredients, those included in this perspective also look for labels showing the absence of negative ingredients, such as dyes or artificial ingredients. Therefore, the Healthy Avoider Mom would be likely to purchase a box of macaroni and cheese if it had both types of labels. For example, the package may have a label with the phrase “no artificial dyes or flavors” and a label with the phrase “good source of calcium.” The Healthy Holistic Mom would not purchase packaged macaroni and cheese, as it does not fit in with their nutritional beliefs or values. The Healthy Holistic Mom would shop for all-natural ingredients and make macaroni and cheese from scratch. When shopping The Healthy Holistic Mom may purchase cheese from a farmer’s market, or, if shopping in a grocery store, look for an organic cheese. Each of these advertising pieces

plays on the beliefs and values of consumers, therefore applying the idea of convergent selectivity to grocery decisions.

### **Implications for Future Research**

Future research should consider several different areas, including consumer beliefs, the format of food labels, and package information. Researchers should continue interacting with consumers to gain a deeper understanding of consumer's beliefs in relation to where their food comes from and what they perceive to be healthy.

Additionally, researchers should consider the socio-economic status of the participants in the study. In order to teach others about agriculture it is important to understand what they perceive to be harmful and beneficial to the body and the environment. Although information is currently provided on the package, it may be too vague or the wrong type of information for certain audiences. Consumers often seek information from those who work in agriculture; however, they are looking to people from different sectors of the agricultural industry who provide them different information.

Secondly, researchers should look at the format of labels and the information displayed on a package. For example, the Healthy Avoider Mom looks for labels indicating both perceived positive and perceived negative ingredients. Researchers may look at the impact of combining this information into one label versus two separate labels. The impact of removing duplicate sources of information may also be considered. For example, many packages have an organic label, but also include labels such as “no hormones” or “no antibiotics,” two conditions that are included in the organic certification. Lastly, consumers, such as the Healthy Holistic Mom, want to know where

their food was produced. Companies may consider placing a label with the producer's name and location on the package, providing more specific information than "locally grown" or "family owned."

### **Implications for Future Practice**

The findings in this study bring to light the importance of implementing agricultural literacy concepts into the mainstream disciplines of K-12 curriculum, university level courses, and maternal nutrition programs. For instance, this could begin with elementary teachers applying Ag in the Classroom materials in math and science courses, such as a lesson on the different types of plants in connection with photosynthesis. High school agriculture teachers can continue building on these concepts by implementing lessons related to nutrition, food production, and marketing. In addition to incorporating agricultural lessons in school curriculum, Extension programs can also be implemented in K-12 schools. Extension programs in the community should also be marketed to K-12 students and parents.

Institutions of higher education should require all students to take a minimum of one agricultural class as part of their degree requirements, such as an introduction to agriculture, nutrition, or animal science class. Additionally, agricultural communication experts should begin working with marketing professionals and producers on the terms and images to use when sharing agricultural information. It is important to be cautious of the words and images used, as they may be interpreted differently by various audiences.

Lastly, health officials should promote programs related to nutrition and proper food choices for women at the time of pregnancy. Mothers first become aware of the health risk associated with many food choices at the time of pregnancy. Nutrition

programs may be offered through doctor's offices or registered dieticians working for county health departments and Extension offices.

Consumers make their grocery shopping decisions based on their beliefs.

Convergent selectivity is consumers freedom to make choices based on their individual beliefs and values. As more information related to food production continues to increase, consumers may change the products they purchase to better fit their values.

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## APPENDICES

### Appendix A



## Oklahoma State University Institutional Review Board

Date: 10/18/2018

Application Number: AG-18-50  
Proposal Title: Mother's Perceptions Towards the Use of Food Production Labels in their Grocery Making Decisions

Principal Investigator: Susan Murray Co-Investigator(s):  
Faculty Adviser: Angel Riggs Project Coordinator:  
Research Assistant(s):

Processed as: Exempt

### **Status Recommended by Reviewer(s): Approved**

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The IRB application referenced above has been approved. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.

The final versions of any recruitment, consent and assent documents bearing the IRB approval stamp are available for download from IRBManager. These are the versions that must be used during the study.

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved. Any modifications to the research protocol must be approved by the IRB. Protocol modifications requiring approval may include changes to the title, PI, adviser, other research personnel, funding status or sponsor, subject population composition or size, recruitment, inclusion/exclusion criteria, research site, research procedures and consent/assent process or forms.
2. Submit a request for continuation if the study extends beyond the approval period. This continuation must receive IRB review and approval before the research can continue.
3. Report any unanticipated and/or adverse events to the IRB Office promptly.
4. Notify the IRB office when your research project is complete or when you are no longer affiliated

with Oklahoma State University.

Please note that approved protocols are subject to monitoring by the IRB and that the IRB office has the authority to inspect research records associated with this protocol at any time. If you have questions about the IRB procedures or need any assistance from the Board, please contact the IRB Office at 223 Scott Hall (phone: 405-744-3377, [irb@okstate.edu](mailto:irb@okstate.edu)).

Sincerely,

A handwritten signature in black ink, appearing to read "Hugh Crethar". The signature is fluid and cursive, with a long horizontal stroke at the end.

Hugh Crethar, Chair  
Institutional Review Board

Appendix B

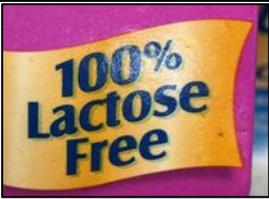
Factor array for each of the three factors

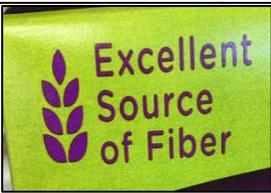
No.	Statement	Factor 1		Factor 2		Factor 3	
		Array	Z-score	Array	Z-score	Array	Z-score
1		-2	-0.785	-3	-0.936	-2	-0.813
2		0	-0.206	-5	-1.716	0	0.064
3		-1	-0.690	3	1.108	0	-0.077
4		-3	-1.146	1	0.571	3	1.100

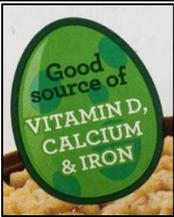
5		-1	-0.438	0	-0.141	3	1.485
6		-2	-0.895	4	1.311	2	0.532
7		-2	-0.817	-3	-1.069	-1	-0.310
8		-4	-1.505	2	1.049	0	0.065
9		-1	-0.503	-4	-1.091	-3	-1.066
10		4	1.426	0	0.118	2	0.484
11		2	1.167	1	0.638	4	1.518

12		3	1.276	0	-0.182	1	0.294
13		0	-0.209	-2	-0.797	5	1.634
14		0	-0.060	-1	-0.558	-1	-0.087
15		-3	-1.023	-1	-0.470	0	0.182
16		-1	-0.641	-2	-0.799	-1	-0.239
17		-3	-0.970	4	1.383	2	0.693
18		0	0.011	-3	-0.991	1	0.316

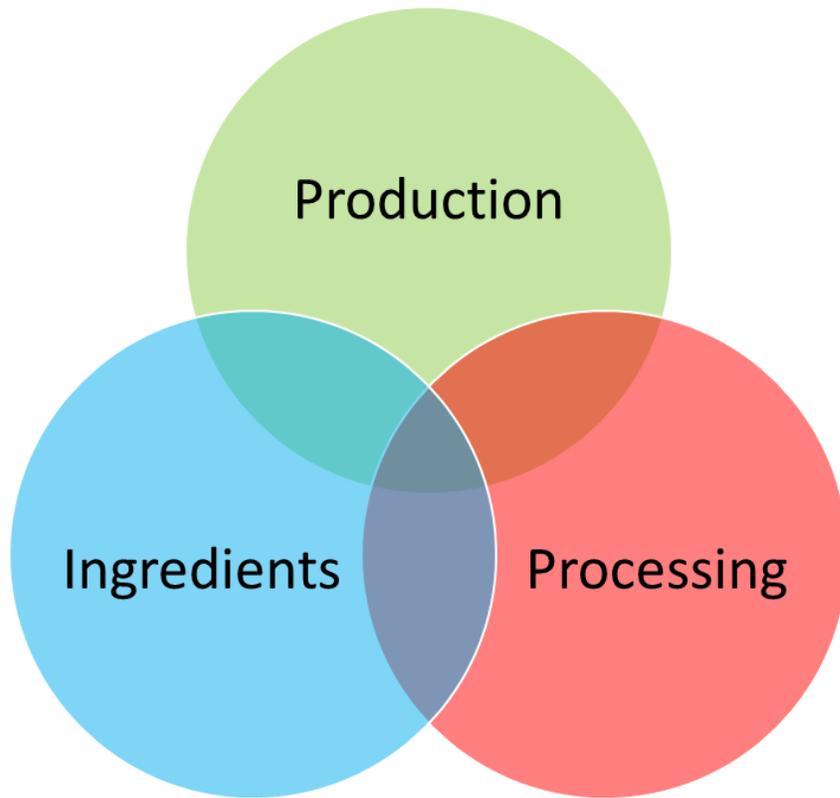
19		-4	-1.222	3	1.229	3	1.511
20		3	-0.690	0	-0.192	-1	-0.327
21		0	0.039	-1	-0.526	4	1.561
22		-1	-0.735	0	-0.265	2	0.622
23		3	1.188	3	1.247	1	0.348
24		0	0.094	-3	-0.984	1	0.256
25		1	0.0399	4	1.314	2	0.763

26		-2	-0.867	-2	-0.895	-5	-2.041
27		1	0.994	-2	0.522	-2	-0.897
28		2	0.602	2	1.100	4	1.522
29		-2	-0.837	-1	-0.755	-1	-0.094
30		2	1.177	2	0.856	1	0.348
31		1	0.240	-1	-0.588	3	1.005
32		0	0.158	-1	-0.326	-4	-1.484
33		-5	-1.723	3	1.197	0	-0.052

34		-4	-1.382	-5	-2.188	-4	-1.411
35		5	1.684	1	0.758	-2	-0.769
36		-5	-1.802	-4	-1.473	-3	-1.402
37		-3	-1.001	-4	-1.650	-4	-1.502
38		1	0.399	1	0.482	-3	-1.067
39		2	0.885	-2	-0.772	-1	-0.665
40		3	1.335	0	0.008	-2	-0.852

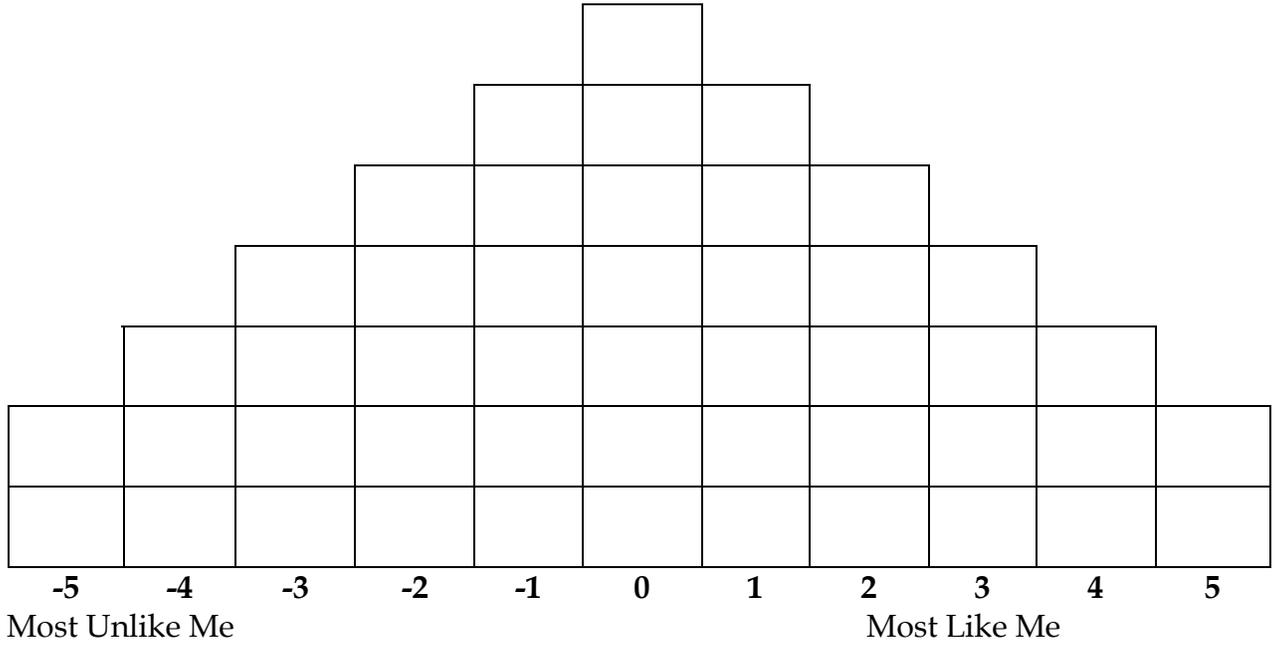
41		4	1.495	1	0.495	-2	-0.910
42		1	0.399	-2	-0.782	-5	-1.596
43		4	1.453	5	1.464	-2	-0.852
44		1	0.325	0	-0.301	0	0.235
45		5	1.609	2	0.939	-3	-1.143
46		-1	-0.474	5	1.551	5	1.962
47		1	0.209	2	1.106	0	-0.029

Appendix C



Appendix D

Q Methodology Form Board



## Appendix E

### **INFORMATION ABOUT STUDY OKLAHOMA STATE UNIVERSITY**

- Project Title:** MOTHERS' VALUES OF FOOD LABELS IN THEIR GROCERY MAKING DECISIONS: A Q METHODOLOGY STUDY
- Investigators:** Angel Riggs, PhD, and Susan Murray, Graduate Student at Oklahoma State University.
- Purpose:** The purpose of this research study is to describe mothers' perceptions and values toward the use of food labels in their grocery making decisions.
- Procedures:** You will be asked to complete a Q-sort which involves reviewing several photos or labels and sorting them into categories based on the extent to which the photos reflect your values. You will then be asked to record your results on a Record Sheet and to complete a short survey that has demographic questions about you. The session should last about 20 minutes. If you choose to provide a first name or code name and phone number, you may be called to discuss study results from your perspective. The call will last about ten minutes.
- Risks of Participation:** There are no known risks associated with this project which are greater than those ordinarily encountered in daily life.
- Benefits:** Results from this research may be used to provide a better understanding for how individuals make food decisions. These findings could have implications for agricultural education, extension, or food retailers. There is no compensation for participating in this research.
- Confidentiality:** You are not asked to provide a signed copy of this form so that no names are collected from you, thereby reducing your risk in participation. Please keep a copy. The records of this study will be kept private. Any written results will discuss group findings and will not include information that will identify you. Research records will be stored on a password protected computer in a locked office and only researchers and individuals responsible for research oversight will have access to the records. Electronic data will be kept indefinitely. However, the forms, which list names and contact information, will be destroyed five years from completion of the study.
- The OSU IRB has the authority to inspect records and data files to assure compliance with approved procedures.
- Contacts:** Please feel free to contact the researchers at Oklahoma State University (Stillwater, OK 74078) if you have questions or concerns about this research project.

Angel Riggs, 440 Ag Hall, 405-744-5133; [angel.riggs@okstate.edu](mailto:angel.riggs@okstate.edu)  
Susan Murray, 526 Ag Hall, (405) 255-9751;  
[susan.e.murray@okstate.edu](mailto:susan.e.murray@okstate.edu)

For information on participants' rights, contact 405.744.3377 or  
[irb@okstate.edu](mailto:irb@okstate.edu).

If you have questions about your rights as a research volunteer, you may  
contact the IRB office at 223 Scott Hall, Stillwater, OK 74078.

Proceeding with sorting implies your consent to participate.

## Appendix F

### Demographic Survey

1. How old are you? \_\_\_\_\_ years
2. Please check the item that best describes your ethnicity. Check all that apply.  
 African American                       Asian American  
 Hispanic/Latino(a)                       American Indian  
 White                                               Other, please specify: \_\_\_\_\_
3. What is your highest level of education?  
 High School  
 Associate Major: \_\_\_\_\_  
 Bachelor Major: \_\_\_\_\_  
 Master Major: \_\_\_\_\_  
 Doctorate Major: \_\_\_\_\_
4. Are you the primary shopper for food in your household? \_\_\_\_\_ Yes \_\_\_\_\_ No
5. For which groups of people do you buy food (check all that apply)?  
 Infants                                       Young adults  
 Toddlers                                       Adults  
 Elementary school                       Elderly  
 Teenagers                                       Other, please specify: \_\_\_\_\_
6. Do your children live at home? \_\_\_\_\_ Yes                      \_\_\_\_\_ No
7. If your answer to question 6 is yes, how many children under the age of 18 do you have living with you?  
 1  
 2  
 3  
 4  
 5 or more
8. Are you from a rural, suburban, or urban city (check one)?  
 Rural  
 Suburban  
 Urban
9. Do you have any health or diet restrictions? If so, please explain.
10. What else would you like to say about the ideas on the statements you sorted?

A follow-up phone interview may be conducted to clarify results. If you would be willing to participate in a phone interview please write your first name (or a code name that you will know) and a telephone number at which you can be reached.

(CODE) NAME \_\_\_\_\_ PHONE \_\_\_\_\_

VITA

Susan Elizabeth Murray

Candidate for the Degree of

Doctor of Philosophy

MOTHERS' VALUES IN THEIR GROCERY MAKING DECISIONS: A Q METHOD  
STUDY

Agricultural Education

Biographical:

Education:

Completed the requirements for the Doctor of Philosophy in Agricultural Education at Oklahoma State University, Stillwater, Oklahoma in May, 2019.

Completed the requirements for the Master of Agriculture in Animal Science at Oklahoma State University, Stillwater, Oklahoma, 2013.

Completed the requirements for the Bachelor of Science in Animal Science at Oklahoma State University, Stillwater, OK, 2011.

Experience:

Adjunct Professor, Northern Oklahoma College (2015 – 2019)

Research Specialist, Oklahoma State University (2013 – 2018)

Feeds and Feeding Intern, Feedlot Health Management Services (Summer, 2012)