Understanding standard graphic labeling as a means to inform and influence consumer purchasing choices with regard to artificial food additives.

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# Table of Contents

TABLE OF CONTENTS ........................................................................................................ iii

LIST OF FIGURES ........................................................................................................... v

ACKNOWLEDGMENTS ..................................................................................................... vii

CHAPTER

I. INTRODUCTION ........................................................................................................... 1
   - Assumptions ................................................................................................................ 2
   - Methodology ............................................................................................................. 3
   - Limitations ............................................................................................................... 4

II. BACKGROUND AND CONTEXT ............................................................................. 6
   - U.S. Government Regulation in Food Packaging .................................................. 6
     - Pure Food and Drug Act ....................................................................................... 6
     - The Federal Food, Drug, and Cosmetic Act ....................................................... 7
     - Fair Packaging and Labeling Act ....................................................................... 8
     - Nutrition Labeling and Education Act of 1990 ............................................... 8
   - Verbal Food Packaging Claims ............................................................................. 9
     - Health claim ........................................................................................................ 9
     - Nutrient content claim ....................................................................................... 10
     - Structure/function claim .................................................................................. 11
   - Graphic (Visual) FOP Labeling .......................................................................... 12
     - Nutrient-specific FOP labeling ......................................................................... 12
     - Summary or scoring system ............................................................................. 13
     - FOP labeling claims role in consumer decisions ............................................. 15
   - Governing Bodies for Food Safety and Labeling ................................................ 16
     - Food and Drug Administration (FDA) ............................................................. 17
     - United States Department of Agriculture (USDA) ........................................... 17
   - Additive Ingredients ............................................................................................ 18
     - What are additives and why are they used? ..................................................... 18
     - Artificial additives ............................................................................................ 21
     - Natural additives .............................................................................................. 23
     - Additive labeling ............................................................................................... 24
     - Consumer concerns and perceptions of additive labeling ......................... 25
   - Consumer Behavior ............................................................................................. 28
III. PRIMARY RESEARCH ........................................................................................................30
   Ethnographic Observational Research ........................................................................30
      Giant Eagle Market District ..................................................................................30
      Heinen’s .............................................................................................................31
      ALDI ......................................................................................................................32
      Marc’s ....................................................................................................................33
   Ethnographic observational research findings .........................................................34
   Online Survey ...........................................................................................................35
      Demographic section overview ..........................................................................36
      Shopping Habit section overview ....................................................................37
      Existing Labeling section overview .................................................................38
      Artificial & Processed Ingredients section overview ........................................41
   Online survey analysis ...........................................................................................45
   Next steps ................................................................................................................50
   Focus Group .............................................................................................................51
      Shopping habits section summary ....................................................................51
      Packaging label section summary ................................................................52
      Artificial additive section summary ................................................................59
      Artificial additive labeling section summary ..................................................59

IV. IMPLICATIONS ........................................................................................................63
   Analysis and Defense .............................................................................................63
      Standardizing artificial additive labeling .........................................................64
      Graphic format of artificial additives ...............................................................66

V. DISCUSSION AND CONCLUSION ........................................................................68
   Option #1: Combination Icon Model .................................................................69
      Color choice .......................................................................................................70
      Graphic detail .....................................................................................................71
      Typeface choice ................................................................................................71
      Location on package .........................................................................................72
   Option #2: Combination Thumb Model .............................................................75
   Option #3: Facts Up Front Model .........................................................................77
   Ingredients List Incorporation .............................................................................79
   Conclusion .............................................................................................................82

APPENDICES
   A. Observational Research Field Notes ...............................................................85
   B. Online Survey Results Report ..........................................................................99
   C. Focus Group Notes and Summary of Responses .............................................129

REFERENCES .............................................................................................................144
# List of Figures

<table>
<thead>
<tr>
<th>Figure</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Hamlin’s Wizard Oil; best pain remedy on earth</td>
<td>7</td>
</tr>
<tr>
<td>2. Cheerios® box</td>
<td>10</td>
</tr>
<tr>
<td>3. Smucker’s® low sugar strawberry preserves</td>
<td>11</td>
</tr>
<tr>
<td>4. Nature’s Truth® Odorless Lemon Flavor Fish Oil dietary supplement</td>
<td>12</td>
</tr>
<tr>
<td>5. Facts Up Front system</td>
<td>13</td>
</tr>
<tr>
<td>6. Guiding Stars rating system</td>
<td>14</td>
</tr>
<tr>
<td>7. Natural ingredient definition comparison between the FDA and USDA</td>
<td>26</td>
</tr>
<tr>
<td>8. Artificial ingredient definition comparison between the FDA and USDA</td>
<td>27</td>
</tr>
<tr>
<td>9. Nutritional Table, original vs. new format</td>
<td>39</td>
</tr>
<tr>
<td>10. Ingredient List</td>
<td>40</td>
</tr>
<tr>
<td>11. Demographic comparison</td>
<td>46</td>
</tr>
<tr>
<td>12. Open text field questions data visualization</td>
<td>48</td>
</tr>
<tr>
<td>13. Focus group viewing the Nutrition Facts Panel</td>
<td>54</td>
</tr>
<tr>
<td>14. Participants viewing the labels on unaltered packages</td>
<td>56</td>
</tr>
<tr>
<td>15. USDA Organic seal</td>
<td>57</td>
</tr>
<tr>
<td>16. Special K® Vanilla Almond cereal</td>
<td>58</td>
</tr>
<tr>
<td>17. SunnyD® Orange Strawberry flavored drink</td>
<td>58</td>
</tr>
<tr>
<td>18. Option #1: Combination icon model</td>
<td>70</td>
</tr>
<tr>
<td>19. Option #1: Colors</td>
<td>71</td>
</tr>
<tr>
<td>20. Option #1: Graphic detail</td>
<td>71</td>
</tr>
<tr>
<td>21. Option #1: Type study</td>
<td>72</td>
</tr>
</tbody>
</table>
22. Option #1: Icon mockup on Kellogg’s® Frosted Strawberry Pop-tarts® .........................74
23. Option #1: Icon mockup on a 12 oz. can of Coca-Cola® ........................................74
24. Option #1: Icon mockup on a jar of Smucker’s® Organic Natural Peanut Butter .........75
25. Option #2: Combination thumb model .......................................................................76
26. Option #2: Mockup on Pepperidge Farm® Goldfish® baked crackers .....................77
27. Option #3: Proposed Facts Up Front system ..............................................................78
28. Option #3: Proposed Facts Up Front system on a box of Duncan Hines® cake mix ...79
29. Proposed Ingredient List space alteration mockup ......................................................81
30. Proposed Ingredient List function mockup .................................................................82
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Chapter I

Introduction

The United States requires, by law, that the Net Contents, Nutrition Facts Panel, Ingredient Statement, Statement/Warning on Allergens, Country of Origin, Name, and Place of Business appear on all prepackaged food labels (Institute of Food Technologies, 2017). The Nutrition Facts Panel, which consists of two main components; the Nutrition Table and an Ingredient List, provides valuable information to consumers such as ingredients, serving size, allergens, fat, sodium, calories and Percent Daily Value (%DV). The Nutritional Table focuses on the dietary needs of the consumer while the Ingredient List displays the ingredients used to prepare the food in order of volume by weight from the greatest to the least. Research shows that these labels are helpful to consumers that want or need more information when making purchasing decisions (Borra, 2006).

Although they may utilize labeling on food packaging, comprehension of the information provided on the labels creates uncertainty among consumers. Some confusion includes the interpretation of the quantitative data in the Nutrition Table (Campos, Doxey, & Hammond, 2011), such as applying items like the %DV and serving size (Lando & Labiner-Wolfe, 2007). Front-of-Package (FOP) labeling systems, claims, and imagery are used by manufacturers to promote their products supposed benefits, which can add another factor to the consumer’s decision-making process.

Due to complicated scientific names, it is hard for consumers to understand what many of the ingredients listed on the Nutrition Fact Panel are (Joshi, Mofidi & Sicherer, 2002). Other areas of confusion include the number (used to prepare food) and quantity (amount of each) of ingredients (Temple & Fraser, 2014) listed. By extension, this confusion surrounds food additive
ingredients. “A food additive is any substance added to food” according to the FDA (U.S. Food and Drug Administration, 2010). There are different types of additives: artificial, specifically chemically produced/altered additives, such as Tertiary Butylhydroquinone (TBHQ), or natural, including sodium. Color additives from natural sources, such as beet juice, provide color to our food. Additionally, so do synthetically produced colors such as FD&C Yellow No. 6 (U.S. Food and Drug Administration, 2010).

Research shows that consumers pay attention to nutrients they want to avoid (Campos et al., 2011). With this in mind, consumers are voicing growing concerns over the nature of the additives in our food. Through studies of additives linked to cancer, concerns are legitimized (Gultekin, Yasar, Gurbuz & Ceyhan, 2015). Consumer concern contradicts the FDA’s approval of the use of additives in food. In what ways might combining consumer concern, graphic labeling research, and confusion over current labeling methods inform or influence a consumer's decision to avoid artificial additives?

This thesis examines how standardized graphic labeling of artificial food additives informs and influences the consumer in his/her purchasing choices. It explores the consumer need and manufacturer’s role in the labeling of products. This research focuses on understanding consumer knowledge, concern, and perception of artificial additives in conjunction with standard graphics labeling on food packaging. For the purposes of this investigation the term “graphic” represents a symbol, image or logo and “verbal” is the written word.

Assumptions

Assumptions were made at the outset to formulate, consider, conduct and write this thesis, which directed, and ultimately defined a research strategy. The following initial
assumptions provided a starting point for the researcher to establish a variety of methods of primary and secondary research examinations:

- Parents are concerned about artificial additives.
- Consumers do not understand what and why additives are in prepackaged food.
- Consumers see different marketing messages (verbal and graphic claims) on prepackaged food, but nothing is consistent (standardized) to enforce knowledge and understanding.
- To make purchasing decisions, consumers read standard nutrition labels when shopping.
- Consumers use the FOP messaging more than the Nutrition Facts Panel.
- Increased public concern over additives (causing cancer and other health problems) drives decisions when purchasing prepackaged food.

Methodology

Various methods of research were used to investigate this thesis. A review of literature, including scholarly journals and studies, provided the groundwork for primary research. Due to the complexity of this topic, the researcher focused on six areas of study:

- Additives/Ingredients/Processed Food
- FOP/Food Claims
- Design of Food Packaging
- Icons in Labeling & Food Packaging
- Standard/Regulated Nutrition Labeling
- Shopping Behavior & Demographics.
An ethnographic study of local grocery stores, early in the research process, allowed for the observation of consumer behavior and provided a foundation to support or question secondary research and assumptions. The combination of these two methods led to the development of additional primary research, expanded upon in Chapter 3 of this document. Included in this research was an online survey that consisted of 30 questions, separated into four categories: Demographics, Shopping Habits, Existing Labeling, and Artificial & Processed Ingredients followed. Open-ended questions on the final page of the survey provided additional direction and insight to consumers’ concerns regarding food labeling. Conducting a focus group helped to answer questions that needed further investigation. Over the duration of the session, members discussed their shopping habits, food label knowledge, usage, and thoughts on artificial additives. Food packaging presented to members of the session allowed them to provide review and to provide feedback.

**Limitations**

Limiting factors contributed to the research results which allow for additional discussion and investigation in future studies. Participation in the survey and focus group were limited to the individuals who responded or were available. Notably, the demographics of respondents and participants could be a factor cited as a limitation. Of the 209 online survey respondents, 91% identified as Caucasian, 79% completed a 4-year or professional degree and 42% had a household income of $100,000-$149,999 or more. Similarly, all six members of the focus group participants were Caucasian and highly educated. Valuable information extracted from the captured demographic provided insight into the study, however, it is recommended to poll different demographics, especially when it comes to race, education, and income.
Recommendation for further exploration of this topic is urged through expanded demographic investigation.

The most significant limitations the researcher encountered was time and scope. Both were a substantial contributor to the inability to design a “new standardized graphics labeling of artificial food additives” as stated in the thesis proposal. Additional research using different demographics and user-testing of new visuals (possibly icons) is necessary. It is necessary even after completion of both primary and secondary research, due to scope and timeframe limitations of this thesis.
U.S. Government Regulation in Food Packaging

To have a conversation about our current food labeling, one must have an understanding of food packaging regulation history. Advertising has appeared on product packaging or labels since the 1500s when a German named Andrea Bernhardt printed his name on the packaging of his products (Klimchuck & Krasovec, 2012).

During the American and British Industrial Revolution packaging design and production became a competitive market. Improvements to manufacturing packaging materials became safer, durable, and more affordable. These improvements changed the way consumers bought, stored, and used prepackaged food. Modern production techniques allowed for advertising in the form of labels on the FOP of goods (Klimchunk & Krasovec, 2012). Increase in manufacturing and advertising led to poor sanitary conditions in food manufacturing plants, the adulteration of products, and the mislabeling of food and medicines. Medicines were not required to list narcotics or opioids on the label (Janssen, 1981). Outrageous claims, such as in Hamlin’s Wizard Oil outdoor advertisement (Resource of Outdoor Advertising Descriptions, n.d.) depicted in Figure 1, declaring that it “cures all pain in man or beast,” were seen on many food and medicine labels. Today the U.S. government regulates much of the content presented on food, cosmetic, and medicine labels. This is the result of a series of laws and amendments enacted over 100 years ago.

**Pure Food and Drug Act.** The Pure Food and Drug Act was passed by Congress in 1906 as a reaction to public outcry for a government response to the food industry’s handling of commercially packaged food products (History, Art & Archives, n.d.). The intended design of
the act was to “prevent the manufacture, sale, or transportation of adulterated or misbranded or poisonous or deleterious foods, drugs, medicines, and liquors” (U. S. Food and Drug Administration [FDA], 2009, para. 1). In 1913 an amendment to The Pure Food and Drug Act was enacted, requiring the labeling of net quantity on all packaged food (Klimchunk & Krasovec, 2012).

Figure 1. Hamlin's Wizard Oil; Best Pain Remedy on Earth. This figure illustrates the outrageous claims in an era of unregulated labels. Reprinted from ROAD: Resource of Outdoor Advertising Descriptions On-Line Project website, n.d., retrieved February 12, 2018 from https://library.duke.edu/digitalcollections/oaaarchives_BBB3047/

The Federal Food, Drug, and Cosmetic Act. The Federal Food, Drug, and Cosmetic Act (FD&C) enacted by Congress and signed into law in 1938 was in response to the tragic deaths of 107 people after taking Elixir Sulfanilamide marketed by S. E. Massengill Co. of Bristol Tennessee (FDA, 2006). This act gave authority to the U.S. Food and Drug Administration (FDA) to oversee the control of “drugs and food, included new consumer
protection against unlawful cosmetics and medical devices, and enhanced the government’s ability to enforce the law” (FDA, 2018-d, para.3).

**Fair Packaging and Labeling Act.** The enactment of The Fair Packaging and Labeling Act in 1967 enabled the protection of the consumer. In short, the act directed the Federal Trade Commission (FTC) and the FDA to require all products “be labeled to disclose net contents, [the] identity of commodity, and name and place of business of the product's manufacturer, packer, or distributor.” The Act continues, “to prevent consumer deception…with respect to descriptions of ingredients, slack fill of packages, use of ‘cents-off” or lower price labeling, or characterization of package sizes” (Federal Trade Commission, n.d., para.1).

**Nutrition Labeling and Education Act of 1990.** With the increase of food processing, there arose a public demand to understand what was in their food. The Nutrition Labeling and Education Act of 1990 (NLEA), which amended the FD&C Act, required standardization of Nutrition information, such as calories, serving size and ingredients on packages (Congress.gov, n.d.). The FDA selected Burkey Belser, an American information designer, to create this label. In an interview with Ariana Eunjung Cha (2014), Belser (2014) explains that he was looking for clarity in the design:

> There’s a harmony about it, and the presentation has no extraneous components to it. The words are left and right justified, which gave it a kind of balance. There was no grammatical punctuation like commas or periods or parentheses that would slow the reader down. (para. 8)

The NLEA also requires that “all nutrient content claims (i.e., ‘high fiber,’ ‘low-fat,’ etc.) and health claims be consistent with agency regulations” (FDA, 2014, para. 2). Legally, in order
to print a claim on a package under this act, it must meet specific criteria set forth by the FDA. These claims intend to influence the consumer’s perception of the product.

**Verbal Food Packaging Claims**

Food labeling informs the consumer of the benefits or risks of a food product, its proper use, and the location of manufacture and distribution. But other messages and graphics also appear on packaging. The researcher investigated food packaging claims that concern representation and regulation. Investigation was also based on the assumption that consumers see different marketing messages on prepackaged food. Labels lack standardization to enforce knowledge and understanding.

A packaging or marketing claim is “made by manufacturers on product packaging, [and] are an important part of product communicating strategy” (Abrams, Evans, & Duff, 2015, p. 20). A combination of many factors such as government regulations, food safety guidelines, and nutritional information determine the form a claim label takes. Food-packaging claims can be either a positive or negative influence when a consumer makes a decision whether to buy a product.

According to the FDA (2018-c), there are three categories a food claim can take: Health claims, nutrient content claims, and structure/function claims. The location can be on the Front-of-Package (FOP) side panel or the back. Wherever a food-claim label appears on a package, it is helpful to understand the different categories.

**Health claim.** A health claim is used to “describe a relationship between a food substance (a food, food component, or dietary supplement ingredient), and reduced risk of a disease or health-related condition” (FDA, 2018-c, para. 2). To be an official health claim it must
not mislead the consumer and must contain both the food and condition in the statement. When used on packaging, it cannot mention a cure for the disease or condition (FDA, 2013).

An example of a health claim is on the lower left corner on a box of General Mills Cheerios® cereal as seen in Figure 2 states “Three grams of soluble fiber daily from whole grain oat foods, like Cheerios® cereal, in a diet low in saturated fat and cholesterol, may reduce the risk of heart disease. Cheerios cereal provides 1 gram per serving” (General Mills Inc., n.d.).

Figure 2. Cheerios® box. An example of a “Health Claim” can be found on this Cheerios box in the lower left corner. March 10, 2018.

**Nutrient Content claim.** A nutrition content claim “describe[s] the level of a nutrient in the product, using terms such as free, high, and low, or it compares the level of a nutrient in a food to that of another food, using terms such as more, reduced, and lite” (FDA, 2018-c, para. 7). The specific food product would have to meet the FDA guidelines for that claim to qualify for
placement on the package. An example of a nutrient content claim is “low sugar” as seen in Figure 3 on the front of Smucker’s® preserves packaging.

![Image of Smucker's® low sugar strawberry preserves]

*Figure 3. Smucker’s® low sugar strawberry preserves. “Low Sugar” as seen on this label is an example of a Nutrient Content Claim. March 10, 2018.*

**Structure/Function claim.** The FDA (2018-c) states that a structure/function claim can “describe the role of a nutrient or dietary ingredient intended to affect the normal structure or function of the human body” (para. 8). This claim identifies a link to an ingredient in the product that suggests a proposed benefit from said ingredient. It cannot correlate with disease. Figure 4 is an example of a structure/function claim is in the following Nature’s Truth Odorless Lemon Flavor Fish Oil dietary supplement copy: “supports heart health.” As evident in the disclaimers on some supplements, these claims are not subject to review by the FDA (FDA, 2018-c).
Figure 4. Nature’s Truth® Odorless Lemon Flavor Fish Oil dietary supplement. This labeling is an example of a Structural/Function Claim. March 21, 2018.

**Graphic (Visual) FOP Labeling**

Front-of-package (FOP) claim labels inform and shape a consumer’s decision to buy a product. With the assumption that that consumers use the FOP messaging more than the Nutrition Facts Panel, the researcher reviewed studies that broke down interpretations and usage. Marketers use verbal and visual elements to guide the consumer to make choices. Consumers find that graphic labels are “more helpful” when looking for quick information. Labels also aid in making healthier decisions (Tarabella & Burchi, 2016, p. 94). Food claims can be verbal; for example, the term “low-fat.” Food claims can also be visual; such as symbols or schemes. Graphic food labeling visuals fall into two categories, nutrient-specific and summary or scoring systems (Hersey, Wohlgenant, Arsenault, Kosa, & Muth, 2013).

**Nutrient-Specific FOP labeling.** Nutrient-specific FOP labeling uses symbols to represent both negative and positive nutrients. An example of a negative nutrient would be
calories. An example of a positive nutrient would be vitamin A. The percentage Guideline Daily Amount (GDA) is a scheme that displays nutrients per portion (Hersey et al., 2013). The Facts Up Front (FUF) label, as seen in Figure 5, fall under GDA. The FUF website states, this “is a simple and easy-to-use labeling system that displays key nutrition information on the front of food and beverage packages” (Facts Up Front, n.d.-a, para.1). Introduced by the Grocery Manufacturers Association, this system uses information from the Nutrition Facts label to guide consumers to make healthier choices by having essential information quickly visible. This method allows for the display of two positive nutrients contained in the product as long as the negative nutrients are also displayed (Hersey et al., 2013).

Figure 5. Facts Up Front system. This is an example of a Nutrient-specific labeling scheme on an Ortega Taco Shells box. March 21, 2018.

**Summary or scoring system.** A summary or scoring system gives a grade or score to the food item. Scores are calculated based on the independent organization’s algorithmic formula (Hersey et al., 2013). The Guiding Stars system depicted in Figure 6 (Guiding Stars Rating System, 2016) is an example of a summary system. Using a rating system from one to three stars,
they aim to inform the consumer of the nutritional value of the food. Three stars have the most nutritional value compared to one star.

Figure 6. Guiding Stars rating system. An example of a Summery or Scoring System. Reprinted from Guiding Stars Licensing Company website, 2016, retrieved October 31, 2016 from https://guidingstars.com/

According to the study Front-of-Package Nutrition Rating Systems and Symbols: Phase I Report (Institute of Medicine, 2010) both systems come with a series of strengths and weaknesses. Nutrient-specific FOP labeling strengths are the consistent approach across all foods that highlight the nutrients of concerns for Americans. The limitations are: space to display the information, the lack of %DV comparisons, and the possibility that consumers might only choose to read the FOP labeling and not the Nutrition Facts Label (Institute of Medicine, 2010). Summary systems also target nutrients to which consumers should pay attention to, but, like the
Nutrient-specific systems, %DV are not present. Also, there is no consistency among different systems that have variations in each respective approach to the analysis of nutrients (Institute of Medicine, 2010).

**FOP labeling claims role in consumer decisions.** Research shows that consumers respond in a positive way to packages with FOP labeling compared to those without such labeling (Kees, Royne, & Cho, 2014). A report notes that 67% of consumers use FOP labeling some of the time (Hawley, Roberto, Bragg, Liu, Schwartz, & Brownell, 2013). Such claim categories intend to regulate and protect the consumer against misleading claims. Yet, many consumers are not aware of the guidelines for regulations and may not understand the conditions or message behind them. The existence of multiple FOP claims can be confusing and consequently overlooked or misinterpreted by the consumer (Tarabella & Burchi, 2016). Graphic FOP labeling schemes are voluntary, thus not regulated or standardized by a governing body. This reduces credibility in the eyes of the consumer. If the claim comes from a trusted source, such as a government agency, it increases the reliability among consumers (Hawley et al., 2013).

A marketer’s intention to influence the consumer to buy a product, noble or deceptive, is unclear. Design cues such as color, typography, and images, can be misinterpreted. Such cues will at times negatively impact consumer decision. This is especially true when the consumer is evaluating a product for healthfulness. Inconsistent food claims are not a good indicator of how healthy the food is (Schaefer, Hooker & Stanton, 2016). In the research report by Abrams et al., Ignorance is bliss. How parents of preschool children make sense of front-of-package visuals and claims on food the verbal claim “made from real fruit” is used in conjunction with images of fruits and vegetables on children’s fruit snacks (2015). The report noted: “Some participants even reported that the more realistic the fruit on a package, the healthier they thought the product
would be” (Abrams et al., 2015, p. 26). In reality, the products offered are processed, sugary snacks. Many consumers cited character and color as enticements for their children but were unfavorable for parents because they felt it was unhealthy (Abrams et al., 2015). Many of these packaging tactics mislead a consumer into thinking a product is healthier than another when in reality it is just as unhealthy as the product sitting next to it on the shelf. In the end, the verbal claims on the same packaging were the most influential in a decision to purchase fruit snacks. Consumers perceive claims such as “natural,” “no sugar added,” and “no artificial flavors, colors or preservatives” as healthier options for their children (Abrams et al., 2015).

**Governing Bodies for Food Safety and Labeling**

The FDA and United States Department of Agriculture (USDA) oversee the food product regulation in the United States. The FDA regulates safety and labeling of 80% (Mayne & Spungen, 2017) of the food consumed in the U.S; the majority consisting of packaged foods, drugs, dairy, seafood and produce. The USDA handles the other 20% with authority over meat, poultry, and egg products (Mayne & Spungen, 2017). The Centers for Disease Control and Prevention (CDC) also works closely with the FDA and USDA to monitor foodborne illnesses and promote food safety (Centers for Disease Control and Prevention [CDC], 2017). In addition to these federal regulating agencies the United States is a member of the Codex Alimentarius Commission (CAC). The CAC, along with the World Health Organization (WHO) and the Food and Agriculture Organization of the United Nations (FAO) working through the Joint FAO/WHO Expert Committee on Food Additives (JECFA) monitor and enforce an international standard code which promotes fair and safe food trade (FAO, 2018). Labeling practices are administered by the members according to their government legislation.
Food and Drug Administration (FDA). The FDA (2017-f) is a federal agency within the U.S. Department of Health and Human Services is responsible for:

...protecting the public health by ensuring the safety, efficacy, and security of human and veterinary drugs, biological products, and medical devices; and by ensuring the safety of our nation's food supply, cosmetics, and products that emit radiation (para. 1).

Within the vast scope of the FDA, The Center for Food Safety and Applied Nutrition (CFSAN) handles the labeling and safety of food processing, and packaging food. It includes the evaluation of all food and color additives. Among the many offices of the CFSAN, The Office of Food and Additive Safety manages petitions, develops compliance policy and guidelines, reviews safety testing methodologies, monitors scientific research involving food and color additives (FDA, 2016). The regulatory status of a food ingredient is subject to a pre-market approval review process. This consists of a series of tests that determine if the food is safe for use. The majority of the responsibility is placed on the manufacturer to comply with regulations (FDA, 2018-a).

United States Department of Agriculture (USDA). Made up of 29 agencies and offices, the USDA “provide[s] leadership on food, agriculture, natural resources, rural development, nutrition, and related issues based on public policy, the best available science, and effective management” (U.S. Department of Agriculture [USDA], n.d., para. 1).

The Food Safety and Inspection Services (FSIS) within the USDA has authority over the safety and labeling of food products in its jurisdiction (meat, poultry and egg products). Through inspections, the FSIS prevents food-borne illnesses, requires the humane treatment of animals at
slaughter and requires that products are correctly labeled (USDA Food Safety and Inspection Services [FSIS], 2014).

This collaborative effort is reinforced under a formal Domestic Interagency Agreement relative to cooperation and collaboration between the USDA and FDA to improve efficiency and transparency where regulative jurisdiction intersects (FDA, 2018-b). These bodies, working in concert with other federal regulatory organizations set standards, enforce legislation, study and monitor the safety and security of our nation's food supply.

**Additive Ingredients**

Blogs, news articles, social media and many other media outlets perpetuate the assumption that consumers do not understand what and why specific ingredients, including additives, are in prepackaged processed food. It is necessary to understand what an additive is and why they are used in food products in order to evaluate the standard labeling of artificial additives. Also, to fully understand the term “artificial” an investigation of the term “natural” is required.

**What are additives and why are they used?** The abundance, affordability, convenience, and availability of food is increasing in the United States and globally. Fruits and vegetables can be consumed all year, not just in growing seasons, food science technologies allow for less spoilage, and improved packaging and shipping methods allow purchase from the living room couch.

The majority of Americans do not grow produce, harvest grains or slaughter livestock for the consumption of their everyday meals. Instead, most shop online or go to a brick and mortar store to buy the produce, dairy, meat and prepackaged foods they need. Part of the way our society meets this demand is by using additives in prepackaged foods to enhance its nutritional
value, flavor, color, texture or as a preservative to extend shelf life which can be reduced or lost in the manufacturing process. Salt is an additive that is used to preserve canned goods. Spices impart flavor. Sugar sweetens ice cream. Baking soda allows baked goods to rise. Brightly colored candies are dyed with color additives and cookies and crackers are processed with TBHQ to stay fresh on a shelf for months.

An understanding of many definitions from regulatory agencies can be useful for this investigation. Regulatory agencies are members of global organizations. They partner with non-government organizations. They also look to other global regulatory agencies for guidance.

The European Commission and the European Safety Authority and the CAC use the Codex General Standard for Food Additives (GSFA) (2017). They define a food additive as:

Any substance not normally consumed as a food by itself and not normally used as a typical ingredient of the food, whether or not it has nutritive value, the intentional addition of which to food for a technological (including organoleptic) purpose in the manufacture, processing, preparation, treatment, packing, packaging, transport or holding of such food results, or may be reasonably expected to result (directly or indirectly), in it or its by-products becoming a component of or otherwise affecting the characteristics of such foods (para. 1).

The FDA (2010) defines a food additive as “any substance the intended use of which results or may reasonably be expected to result -- directly or indirectly -- in its becoming a component or otherwise affecting the characteristics of any food” (What is a food additive section, para. 1). An additive that adds flavor or enhances color is a direct additive. A direct additive has a specific, intended purpose. Indirect additives are a result of packaging or the manufacturing process. There are over 3,000 additives overseen by the FDA. These additives
include preservatives, nutritional additives, coloring agents, flavoring agents, texturizing agents, and miscellaneous agents (FDA, 2010; Carocho, Burreiro, Morales & Ferreira, 2014).

The USDA shares the FDA’s definition for both food and color additives. To make food more appealing to the consumer, color additives are used. Coloring is added to food like candy and children’s cereal to catch the eye. Color additives are in yogurts and BBQ sauce as well. Colors are either Certified; synthetic dyes (such as FD&C Green No. 3) that do not add flavor or are Exempt from Certification; derived from natural sources (such as paprika) and could add flavor (FDA, 2010). The FDA separates food additives and color additives in the majority of their online documentation. A color additive as defined by the FDA (2017-a) is any material:

That is a dye, pigment, or other substance made by a process of synthesis or similar artifice, or extracted, isolated, or otherwise derived from a vegetable, animal, mineral, or other source, and that is capable (alone or through reaction with another substance) of imparting color when added or applied to a food. (para. f).

Additives provide many benefits to our food production environment. The FDA cites safety, freshness, to improve or maintain nutritional value, and enhancing taste, texture, and appearance as reasons additive ingredients are used (2010). Antimicrobial additives serve as preservatives which reduce the risk of food poisoning. Antimicrobial additives prevent mold or bacteria from growing on food. Antioxidant additives preserve flavor and help maintain vitamin and lipid values (Branen & Haggerty, 2002). Longer shelf life for food that is not in season or shipped from across the globe is due to additives (Branen & Haggerty, 2002). These additives replace what might have been lost in manufacturing or entice the consumer to buy or consume.
In contrast, there are risks associated with additive ingredients. Many convenience foods with artificial additive flavors, preservatives, and colors, allow for the proliferation of food that is low in nutrients and high in fat and sugar (Branen & Haggerty, 2002). Branen and Haggerty state that there is not much scientific evidence on the effect of additives in combination with other additives consumed (2002). Additives are regulated on an individual basis, not in conjunction with other foods that might contain additive ingredients. In addition to sensitivity and allergic reactions, there are toxicological (Branen & Haggerty, 2002) and carcinogenic (Gultekin, Yasar, Gurbuz & Ceyhan, 2015) associations to cancer and other diseases, or conditions with regard to the long-term use of additive ingredients.

**Artificial additives.** The words “artificial,” and “natural” are used within the Ingredient List and on the front of packaging when labeling some additive ingredients. Both get plenty of attention when it comes to regulation, labeling, and the public opinion. Another word used to describe artificial ingredients is “synthetic.” The term “artificial” is used by the consumers or in consumer-facing marketing or labeling, while “synthetic” is most often used by the manufacturer or the governing body in legislation or descriptions. Both are interchangeable when discussing and researching, although often the term “synthetic” is used when defining the term “artificial.”

The USDA does not have an official definition of “artificial” but does use it to describe additive ingredients, specifically coloring and flavoring. When discussing organic farming and production, the USDA (2012) defines “synthetic” as:

> A substance that is formulated or manufactured by a chemical process or by a process that chemically changes a substance extracted from naturally occurring plant, animal, or mineral sources, except that such term shall not apply to substances created by naturally occurring biological processes (p. 1).
The FDA does not have an official definition of “synthetic” or “artificial additives.” Instead, the phrases “artificial ingredients,” “artificial flavor(ing),” and “artificial color(ing)” describe the synthetic additives in food. They define each phrase as a whole. The FDA (2010) states that ingredients that “are not found in nature and therefore must be synthetically produced are artificial ingredients” (Questions and Answers about food and color additives section, para. 4). In addition, they note that many ingredients found in nature can be reproduced artificially with the added economic benefits, quality consistency, and improved purity (FDA, 2010).

Both the USDA and FDA (2017-b) share the definition of artificial flavor (or flavoring), found in Title 21 of the FDA’s Code of Federal Regulations (CFR):

...any substance, the function of which is to impart flavor, which is not derived from a spice, fruit or fruit juice, vegetable or vegetable juice, edible yeast, herb, bark, bud, root, leaf or similar plant material, meat, fish, poultry, eggs, dairy products, or fermentation products thereof… (para. a).

The FDA (2017-b) states that “chemical preservative” is:

...any chemical that, when added to food, tends to prevent or retard deterioration thereof, but does not include common salt, sugars, vinegars, spices, or oils extracted from spices, substances added to food by direct exposure thereof to wood smoke, or chemicals applied for their insecticidal or herbicidal properties (para. 7).

*Title 21 of the CFR* defines an artificial color(ing) as any color additive (FDA, 2017-b). Whether a color is derived from a natural source, such as beet juice, or if it is synthetically created such as FD&C Yellow No. 6, it is still considered artificial. This is because it is imparting or enhancing color on food that did not initially have that color.
**Natural additives.** The awareness of the term “natural” has increased on packaging and in advertisements in the past few years. There have even been three Citizens’ Petitions asking the FDA to prohibit the use of the term “natural” on labels (FDA, 2017-d). The FDA and USDA do not have consistent explanations or official definitions for the term “natural.” The FDA (2017-d) refrains from providing a formal definition of the term “natural;” however, on food package labeling they refer to it as “nothing artificial or synthetic (including all color additives regardless of source) has been included in, or has been added to, a food that would not normally be expected to be in that food” (para. 3).

The USDA’s (2011) primary responsibility is meat and poultry regulation and defines “natural” within this context:

> A product containing no artificial ingredient or added color and is only minimally processed. Minimal processing means that the product was processed in a manner that does not fundamentally alter the product. The label must include a statement explaining the meaning of the term natural (such as “no artificial ingredients; minimally processed.”) (p. 3)

There is no definition of the phrase “natural additive.” Like the term “artificial flavor(ing),” the word “natural” is in the phrase “natural flavor(ing).” This definition does extend to the most researched natural additives: preservative, coloring, antioxidant or sweetener (Carocho, Morales & Ferreira, 2015). Both the USDA and FDA (2017-b) share the definition of natural flavor (or flavoring), found in *Title 21 of the CFR*:

> The essential oil, oleoresin, essence or extractive, protein hydrolysate, distillate, or any product of roasting, heating or enzymolysis, which contains the flavoring constituents derived from a spice, fruit or fruit juice, vegetable or vegetable juice,
edible yeast, herb, bark, bud, root, leaf or similar plant material, meat, seafood, poultry, eggs, dairy products, or fermentation products thereof, whose significant function in food is flavoring rather than nutritional (para. 4).

**Additive labeling.** By law, according to the FDA (2013), all ingredients must be listed on the label, container or wrapper in descending order of predominance by weight in the Ingredient List. The minimum height of the type must be 1/16” (based on the lowercase “o”). Names should be “prominent, conspicuous, and easy to read” (p. 17). When listing ingredients, the common and usual name of each ingredient should be used.

Listing coloring ingredients is different based on if it is a Certified color or Exempt from Certification. Red 40 is a Certified color, represented on the label by its abbreviated name. An example of Exempt from Certification color represented in multiple ways can be as follows: Listed by the name of the ingredient, ex. “caramel coloring,” or by stating “artificial color” or “colored with beet juice” (FDA, 2013). A chemical preservative must be represented in the Ingredient List as its common and usual name. It must also include its function, for instance “for freshness” (FDA, 2013).

“Artificial flavoring” and “natural flavoring” have extra requirements for labeling. This labeling is dependent on packaging imagery, product name or description, and verbal claims. This extra labeling must be displayed on the FOP display panel and has many guidelines to follow. This labeling is verbal and not graphic. For example if a box of strawberry fruit snacks has an image of strawberries on the box or if the name or flavor of the product contains the word “strawberry” and if the product is made up of no artificial flavors to create the flavor of strawberry, the term “natural strawberry flavored” must appear on the FOP “in letters not less than one-half the height of the letters used in the name of the food” (FDA, 2017-b, para. 26). If
apples are also used to simulate the strawberry flavor, the labeling would read “with other natural flavor.” If the flavor of strawberry comes from artificial flavors the term “artificially flavored” or “strawberry artificial flavor,” must be “in letters not less than one-half the height of the letters used in the name of the food” (FDA, 2017-b, para. 30). There are additional requirements for different combinations of flavors.

**Consumer concerns and perceptions of additive labeling.** Overwhelming coverage from a number of non-peer reviewed sources substantiates the public’s concern that artificial additives and their origins are bad for public consumption. This researcher’s review of additives, both synthetic and natural, and their use in our food proves to be a complicated crossroads of the public’s interest and confusion over food safety that fuels discussions, opinion, and consumer reaction. The use of additives is not a new phenomenon; it has existed in our kitchens and the manufacturing of prepackaged foods for centuries. So why is there so much public concern?

Terminology used on labels can be one culprit. Many consumers are not aware that an additive can be a common ingredient found in their kitchens, such as salt or sugar. Ingredients listed on food packaging are often labeled with their scientific name (which is considered common and usual). The scientific name sounds like a chemical and therefore thought to be artificial. However, many additives are “natural” such as Tocopherols (antioxidant), Poly-L-Lysine (antimicrobial) and Tagatose (sweetener) sound manufactured (Carocho et al., 2015). The lay audience will not understand what these terms are and might mistake them for artificial additives. Conversations surrounding additives usually lead to a discussion about artificial colors or flavors (Bearth, Cousin, & Siegrist, 2014). These additives drive most of the public concern. The lack of consistent definitions for the terms “artificial” and “natural” can fuel confusion, especially among the leading regulatory bodies. The consumer population does not know the
difference between many artificial or natural additive ingredients (Carocho, Morales & Ferreira, 2015). To address this, the researcher created a comparison diagram for natural, shown in Figure 7, and artificial ingredients shown in Figure 8, to clarify the disconnect and definitions.

**Figure 7.** Natural ingredient definition comparison between the FDA and USDA

Food claims on labels such as “all natural” can be confused with ingredient/additive labeling. “Organic,” “free from,” and “natural” are clean label claims (Asioli, Aschemann-Witzel, Caputo, Vecchio, Annunziata, Næs, & Varela, 2017). A clean label claim is a new phenomenon or movement that is not regulated by the FDA or other governing agencies. Confusion arises over the definition in food manufacturing or labeling when ingredients are
derived from a natural source and altered, or indirect additives are found in food as a result of the packaging or manufacturing process.

Figure 8. Artificial ingredient definition comparison between the FDA and USDA

Other terminology can also be related to confusion between labeling and consumers’ trust in regulating bodies. Certified colors sound like colors that have been reviewed and subsequently approved by the regulating agency (Bruhn, 2002), in this case, the FDA. In contrast, Exempt from Certification colors sound like they are not regulated. This disparity could falsely create more trust in one term over another. In truth, there is regulation of both, but Certified colors are synthetic as mentioned previously (such as FD&C Green No. 3) and Exempt from Certification colors are derived from plants or minerals. Another confusing term is the phrase “artificial colors” or “artificially colored.” The FDA refers to any color added to food, artificial, even if it
comes from a natural source. Consumers could misread this as synthetic and therefore a chemically based color.

American lifestyles demand that food is mass-produced, packaged and sold on shelves in retail environments such as grocery and convenience stores. Many preservatives are food additives used to allow for mass production and distribution of convenience foods. This prevents spoilage and reduces food cost (Sumner & Eifert, 2002). Consumers seem to be unaware of the benefits of additives as a preservative (Bruhn, 2002). A lack of education and understanding of legal guidelines can be blamed for this gap in food additive knowledge. As mentioned previously, chemical preservative function must be listed on the Ingredient List. Salt could also be used as a preservative, but is not considered a chemical preservative, therefore its function is not required to be listed on the Ingredient List.

The Ingredient List format is another source of consumer confusion and strife. Many consumers cite the complicated ingredient names as a concern when reading labels (Joshi et al., 2002). The quantity of ingredients is not accounted for (percentage by weight) which does not help a consumer to understand how much of an ingredient is in the food s/he wishes to purchase (Temple & Fraser, 2014). Additionally, terms such as “natural flavor” or “artificial flavor” do not tell the consumer what the “flavor” is actually made of (Joshi et al., 2002). This can be a concern for those avoiding certain additives, but a great concern for those with allergies. The type size of the ingredients list is also problematic for some; the condensed tiny type is hard to read (Soederberg Miller & Cassady, 2015).

**Consumer Behavior**

According to the *Grocery ShopperImpact MegaStudy* by VideoMining (2017) men (49%) shop at grocery stores almost as often as women (51%). According to the same study, women
buy more than men and spend more than men do (VideoMining, 2017). Peer-reviewed sources state that women are more concerned about artificial additives in food than men (Hwang, Roe, & Teisl, 2005). If children are part of their household, “the more likely the respondent was to perceive the specified issues as health risks” (Dosman, Adamowicz, & Hrudey, 2001, p. 314).

Women shop from a grocery list more than men do (Kumer, 2017) and 68% of the visits to the grocery store are for 10 items or less (VideoMining, 2017). Consumers spend 25% of a budget on processed foods and sweets located in the center aisles of the grocery store (Lake, 2016). However, 20% of consumers are starting to avoid the center of the store (VideoMining, 2017). A combined total of 43% of consumers read the Nutrition Facts Table and Ingredients List “always” or “almost always” (Borra, 2006) and find them useful when trying to avoid specific ingredients (Cowburn & Stockley, 2005). The average shopper is the U.S. is 44 years of age (Lake, 2016), but studies show that middle-aged or younger adults use labels more than older adults (Campos et al., 2011). Income and education play a role in the use of Nutrition labels. Campos et al. (2011) note that lower-income consumers read nutrition labels less than higher-income consumers do. Higher-educated consumers use nutritional labels more often. Also, Caucasian consumers make use of nutritional labels over other ethnic groups, notably African-Americans and Latinos (Campos et al., 2011).
Chapter III

Primary Research

The abundance of secondary data gathered from literature like online books, academic or peer-reviewed journals, and government websites provided a foundation of information to conduct both qualitative and quantitative primary research. There were three methods used for primary research: Ethnographic observational research, an online survey, and a focus group.

Ethnographic Observational Research

Qualitative research began with an observational ethnographic study conducted to evaluate consumer behavior. An assumption at the outset of this investigation was that to make purchasing decisions, consumers read nutritional labels while shopping. The researcher visited four grocery stores in the greater Cleveland area over the course of four days to investigate this assumption. A wide variety of grocery store models, from upscale to discount grocery stores, were chosen to allow for the incorporation of different consumer demographics. For more information about primary observational research conducted in this study, please refer to Appendix A on page 85.

Giant Eagle Market District. Located in Strongsville, Ohio, Market District is an upscale supermarket chain owned by the parent company, Giant Eagle. Giant Eagle stores are located in Pennsylvania, Ohio, West Virginia, Maryland and Indiana. Giant Eagle is one of the “40 largest privately held and family-operated companies in the USA” (Market District, 2017, para 2). Market District locations are in Ohio, Pennsylvania, and Indiana. Market District stores sell groceries, provide cooking classes and offer in-store dining. Market Districts have many departments, including Bakery, Deli, Prepared Foods, Pharmacy and more. According to the U.S. Census Bureau, Strongsville, a suburb of Cleveland, Ohio, has a population of 44,600
people (2016-e), with the median income per household of $80,000 (2016-d). About 92% of the Strongsville population identifies as white (U.S. Zip Codes, 2018 c & d). During the observation, the store was not crowded. The majority of the consumers were mothers with young children and senior women. There were a few men and a couples shopping as well.

Observations:

- **A Caucasian man in his mid-thirties**: The man looked carefully at the FOP of Weight Watchers Smart Ones frozen meal. He spent approximately 30 seconds but did not look at the back or side of the package at the Nutritional Facts Panel.

- **A Caucasian woman (mother), holding a smartphone, pushing a full cart of groceries with two small girls**: One girl was in the cart, and the other was helping pick items off the shelf. The woman did not turn the package over to look at the Nutritional Facts Panel or look extensively at the FOP.

- **Man and woman (Caucasian) in their late twenties, appear to be a couple**: The man was on his cell phone, the women grabbed a box of the shelf. Neither looked at the Nutritional Facts Panel nor spent extra time on the front of package labeling.

**Heinen’s.** Heinen’s is a Northeast Ohio based family-owned full-service grocery chain. Heinen’s has many departments including Bakery, Deli, Floral & Gifts, Prepared foods, Wellness and more. The store visited was also located in Strongsville, Ohio and was not crowded when the observations were made. The majority of the consumers were mothers with young children and senior women.
Observations:

- **Caucasian woman in her 40’s, paper list in her hand:** The woman looked at the front of a box of pasta for about five seconds. She did not turn the package over. She placed the item in her basket. The woman then picked up a can of tomato sauce and looked at the front for approximately 5-7 seconds and did not rotate it to view the back. She then put the can in her basket.

- **Caucasian woman in her 40’s:** The woman chose a package of hot dogs and studied the front of the package and then put it back on the shelf. She picked up another and examined the front of the package and placed two packages in her basket. *Note: The hot dog packaging does not have any content on the back, all the information (logos, claims, product name and nutritional labeling) is on the front.*

**ALDI.** The researcher visited an ALDI grocery store, located in North Olmsted, Ohio. ALDI US is a German-based discount grocery store chain with almost 2,000 stores in the United States (ALDI, 2018). Consumers pay a deposit to use the shopping carts and the store charges for grocery bags at checkout (consumers can also bring bags to the store). There are no in-house services such as a deli counter, pharmacy or bakery. According to the U.S. Census Bureau, North Olmsted, a suburb of Cleveland, has a population of about 31,800 people (2016-c), with a median income per household about $61,400 (2016-b) with 92.6% of the population identifying as white (U.S. Zip Codes, 2018-a). The store was moderately busy, and the consumers were a mix of mothers with young children, senior women and men, and middle-aged men.
Observations:

- **Caucasian woman in her mid-thirties with a toddler in a shopping cart, paper list in hand:** As her son was calling for her, a woman looked at two packages for approximately 30 seconds. She did not turn either package over. Soon after that, she picked up a bottle of salad dressing and turned it over to inspect the back of the item and put it back on the shelf. The woman picked up another salad dressing, read the back of the bottle and put it back. She repeated this for the third time and then placed the last bottle in her cart.

- **Caucasian woman with young toddler girl and a full cart:** The woman crisscrossed the store multiple times, cell phone in hand, talking to the little girls; she did not seem to be in a rush. The woman looked at a few box fronts for approximately 10 seconds. She flipped a package one time to inspect the back of the food package.

- **Middle-aged Caucasian woman, in workout clothes:** The woman appeared to be in a hurry and did not turn over any packages or look extensively at FOP.

**Marc’s.** Marc’s is a discount closeout and grocery store chain with over 60 stores in Ohio (Marc’s, 2018). The researcher visited the Marc’s Puritas location in the West Park neighborhood in the City of Cleveland, Ohio. According to the U.S. Census Bureau, the City of Cleveland has a population of just over 385,809 people (2016-a), but the neighborhood of West Park’s population is 26,861 (U.S. Zip Codes, 2018-b). Additionally, the median income per household is $38,039 with 67.5% of the population identifying as white (U.S. Zip Codes, 2018-
b). During the observation, the store was busy with a mix of consumers: senior women, men, couples, middle-aged women in scrubs, and middle-aged men.

Observations:

- **Caucasian woman in 40’s no visible list present:** The woman chose snack crackers and did not look at the Nutrition Facts Table or look at the front for an extended period. When the woman chose a box of granola bars, she turned over a box and looked at the Nutritional Facts Panel and put it back. She picked up another box of granola bars and repeated the same action, she did not purchase.

- **African American middle-aged woman, no visible list present:** She looked at a loaf of bread on the shelf, picked up a bag of bread without reading any labels, repeated with rolls.

- **Senior woman and pre-teen or young teenage girl, Caucasian, paper list in senior’s hand:** Younger girl was reading a label on a package of chocolate cakes for the older woman.

- **Middle-aged, Caucasian man in bread aisle:** He headed over to a specific brand of bread, did not linger, grabbed the bag he wanted, he looked to be in a hurry.

**Ethnographic and observational research findings.** Contrary to secondary research findings, the majority of consumers across all stores did not look at the food labels when shopping. Those who did review the standard labeling put the food item back on the shelf and picked another up to read before making a decision. Almost all of the shoppers had a smartphone in hand. Many shoppers did not spend much time looking at the FOP, especially those that appeared to be in a hurry. Some female shoppers who had young children seemed distracted.
Ultimately, the researcher developed four questions from this ethnographic investigation:

1. Have consumers previously purchased items and, therefore, did not find the need to reread labels for information?
2. Would a grocery list facilitate a consumer purchasing food items previously bought and therefore, s/he does not need to look at the ingredients when repurchasing?
3. Would a smartphone be used to look up ingredients or hold a grocery list?
4. When a consumer is in a hurry or distracted, does that preclude him or her from reading labels?

**Online Survey**

As stated, secondary research indicated that consumers read labels to help make decisions about what food to buy and what ingredients to avoid. The researcher also confirmed that there is an abundance of public concern over additives in food. The lack of consumer education over additive terminology, risks and benefits, regulation, graphic claims, and nutrition and ingredient labeling stood out as significant areas to consider when developing qualitative research. The literature review and questions mentioned in the ethnographic research became the foundation for an online survey.

The online survey’s purpose was to understand the following questions (in addition to those formulated from the observational research):

1. How do consumers shop (how often, with whom, for whom, do they use a list)?)
2. Do consumers use the current standard labeling system in the U.S. and why?
3. Do consumers use or recognize the non-standard graphic FOP labeling?
4. How do they feel about artificial additives and processed ingredients?
The anonymous online survey was created and released using the web-based survey tool, Qualtrics. There were 209 responses to 30 questions that used the Likert Scale and open text field format for respondents to provide written answers. The survey has four categories based on previous research: Demographics, Shopping Habits, Existing Labeling, and Artificial & Processed Ingredients. A link was distributed through emails to the researcher’s family, friends, colleagues. It was also sent to graduate students, faculty, and staff in The College of Communication at Kent State University. A link was also posted on Facebook. For more information about the online survey conducted in this study, please refer to Appendix B on page 99.

**Demographic section overview.** The first section of the survey was used to collect demographic data. Demographics such as age, ethnicity, gender, income, and education play a role in consumer knowledge of food additives and standard nutritional labeling. Understanding the demographics of the respondents can inform results from the sections that follow.

The Demographic survey data indicated that 75.61% of the respondents identified as female over 24.39% of those who identified as male. The majority of respondents considered themselves white (91.71%), with the next highest majority being “Black or African American” (4.39%). The ages of the respondents were closer in range with the majority between ages 35-44 (24.39%). The second largest age group was 25-34 (23.41%). The third largest age group range was 45-54 (19.51%). The fourth largest group was between the ages of 65 and 74 (16.74%). Of the respondents, 72.28% were married. A combined total of 27.72% consisted of widowed, divorced, separated and never married persons. The respondents were highly educated with 47.03% having a 2-year or 4-year degree and 40.10% obtaining a professional or doctorate. The
majority of the respondents (26.63%) had a household income of $100,000-$149,999 with 16.83% having an income of more than $150,000.

**Shopping habit section overview.** Observational research contradicted secondary research as many consumers did not read labeling when shopping. The researcher gathered from observational research indicated that distractions, such as shopping with children and time constraints, might affect the consumer's willingness to read labels. Previous studies (Dosman, Adamowicz, & Hrudey, 2001, p. 314) indicate that consumers with children as a part of their households are more concerned about additives than those who do not have children as part of their households. Among other data, the Shopping Habits section of the online survey aimed to answer the questions “How do consumers shop, how often, with whom, for whom?” and “When a consumer is in a hurry or distracted, does that preclude them from reading labels?”

In addition, the researcher noticed that the majority of consumers observed carried a smartphone and speculated that the device could be used to hold a shopping list. The researcher thought it might be a way for consumers to look up ingredients and additives on prepackaged food. This researcher intended this section of the survey to answer the observational research questions “Would a grocery list facilitate a consumer purchasing food items previously purchased and therefore, did consumers not need to look at the ingredients when repurchasing?” and “Would a smartphone be used to look up ingredients or hold a grocery list?”

The Shopping Habits survey data indicated 64.18% of the respondents were the primary shopper for their household and 21.39% shared the responsibility with someone else in their household. Consumers went to the store once a week (43.28%) or 2-3 times a week (47.26%) for groceries. The majority of the respondents shopped for children (28.72%) and spouses (48.44%). When asked “When you grocery shop, who do you primarily shop with?” 43.4% answered that
they shop alone, 28.77% responded that they shop with a spouse, 22.17% responded they shop with children. Of those that shopped with children, 42.55% said they were likely and 29.79% said they were extremely likely to become distracted during their shopping trip.

When asked “How often do you use a shopping list when grocery shopping?” 29.65% answered “Always,” 36.18% answered “Most of the time,” 10.05% answered “About half the time,” 14.07% answered “Sometimes” and 10.05% answered “Never.” Of those who carry a grocery list with them, the majority (45.25%) of respondents had their list on paper. The second highest group carried their grocery list on both paper, and on a smartphone (33.52%). The smallest group used only a smartphone (21.23%) for their list.

**Existing labeling section overview.** This section aims to answer the researcher’s question: Do consumers use the current standard labeling system in the U.S. and why? The researcher was specifically interested in the Ingredient List, where artificial and natural additives must be labeled on prepackaged food. Another question addressed in this section of the online survey was: Have consumers previously purchased and therefore, have no need to reread labels for information? The researcher speculated during observation that this might be a reason consumers were not reading labels when shopping.

The respondents were shown The Nutritional Table (FDA, 2017-e), represented in Figure 9, and asked how likely they were to read it on prepackaged food while grocery shopping? A combined total of 71.5% said they were likely or extremely likely to read the Nutritional Facts when grocery shopping. Fourteen percent said they were “Neither likely nor unlikely” to read the Nutritional Facts Table and a combined total of 14.5% were either “Unlikely” or “Extremely unlikely” to read the table. When asked the same question regarding the Ingredient List (FDA, 2017-c), shown in Figure 10, 26% and 39% were “Extremely likely” and “Likely” to read it,
respectively. Fourteen and a half percent said they were “Neither likely nor unlikely” to read the Ingredient List and a combined total of 20.5% were either “Unlikely” or “Extremely unlikely” to read the list.

Figure 9. Nutritional Table, original vs. new format. This visual was used for reference in the online survey. Reprinted from U. S. Food and Drug Administration website, 2017, retrieved July 13, 2017 from https://www.fda.gov/food/guidanceregulation/guidancedocuments/regulatoryinformation/labelingnutrition/ucm385663.htm
Respondents read ingredient labels because they were curious about what ingredients are in their food (26.22%), and because they wanted to avoid food containing artificial ingredients or processed ingredients (both 19.23%). They also looked for allergens or wanted to avoid artificial colors (both 12.94%). Some respondents chose “other” as an option (9.44%) and wrote their reason in the open text field provided. The majority of respondents wanted to avoid sugar. Some wanted to avoid animal by-products for a vegetarian diet. Some respondents mentioned specific additives to avoid, such as High Fructose Corn Syrup and Monosodium Glutamate (MSG). Fat, salt and weight loss/calories were also mentioned. It is worth noting that salt, sugar, High Fructose Corn Syrup and MSG are all considered additives.

When asked if they find the Ingredient List difficult or easy to interpret, 38.69% said it was “Easy” to interpret, and 33.69% said it was “Neither easy nor difficult.” Surprisingly only 20.10% said it was “Difficult” and 2.51% thought it was “Extremely difficult” to interpret. Of those who thought it was "Difficult" or “Extremely difficult” the majority (45.57%) said they “Do not understand the definition of many ingredient terms.” “Type scale or style” was second with 32.91% and the “Location of the Ingredient List” was third at 18.99%.

Figure 10. Ingredient List. This representation of the Ingredients List was used in the online survey. Reprinted from U. S. Food and Drug Administration online PDF, 2017, retrieved July 13, 2017 from https://www.fda.gov/downloads/Food/IngredientsPackagingLabeling/LabelingNutrition/UCM537178.pdf
When asked if they reread the Nutrition Facts Table and Ingredient List when shopping for items they had previously purchased, only 3.90% “Always” reread labels. 13.65% “Never” reread labeling. The majority of respondents said “Sometimes” (56.59%) with “Most of the time” and “About half the time” coming in second at 12.99% each.

**Artificial & processed ingredients section overview.** The last section of the online survey addressed the researcher’s questions: Do consumers use or recognize the non-standard graphic FOP labeling? How do they feel about artificial additives and processed ingredients? Prepackaged foods are often considered processed and, in turn, have artificial additives. The researcher’s intention behind this section of the survey was to evaluate if a consumer is willing to avoid a food altogether or if they want more information about artificial additives and processed ingredients.

The first question was an open text field. It asked, “What thoughts or opinions do you associate with the term ‘artificial additives?’” Out of the 183 responses, the majority of them skewed toward negative connotations with words including: avoid, bad, cancer, chemicals, concerned, fake, harmful, man-made, negative, not good, not natural, not preferred, poison, unnecessary, and unhealthy used repeatedly. Some respondents used phrases such as:

- “That it is something used in place of something else. That its use makes the food worse for me.”
- “I associate bad tasting, leaving a feeling of oil in my mouth, and not wanting to purchase it.”
- “Generally negative, because it sounds like there is something being hidden into the food even if the additive is an artificial sugar or flavor.”
Respondents listed specific ingredients like sulfates, MSG, sugar, or artificial sweeteners. Some respondents mentioned that artificial additives are “hard to avoid” or that they were “common” and realized that many of the foods contain them. Others commented on the reason why artificial additives are present, such as: to add flavor, color or use as a preservative. Fewer respondents seemed unsure of the term.” For example, some responded with “I would think that it's probably not great for me, but I would still eat it if it sounded good otherwise.” One person had “No strong opinions, but I don't believe artificial means bad automatically.” Some respondents thought the question or term was too vague.

When asked in another open text field, “What thoughts or opinions do you associate with the term ‘processed ingredient?’” respondents answered in a similar way to the previous question about artificial additives. The majority of respondents felt a negative connotation. They used words like: avoid, bad, chemical, don’t buy it, fake, GMO, less healthy or less nutritious, negative, not good, not natural, obesity, and unhealthy. Some mentioned specific ingredients such as: sugar, fat, salt, and MSG. Some respondents thought the question was too vague. Many respondents thought that the processing of food was necessary and that all food has to be processed to some extent. Some examples of the written responses are:

- “Cooked or prepared. Not in raw or original state.”
- “Anything that is far removed from the original food source.”
- “Anything that is not fresh has been processed in some way.”
- “It's a meaningless term. Everything is 'processed' in some fashion.”
- “That the food has been altered/combined with other things. Not a bad thing necessarily, my first thought was peanut butter is processed, and I eat it all the time.”
Thirty-three point thirty-three percent of respondents stated that avoiding artificial additives or processed ingredients was “Moderately important.” A combined total of 40.52% thought it was “Extremely important” or “Very important,” while a combined total of 26.15% thought avoiding these ingredients was “Slightly important” or “Not at all important.” Ninety point sixty-seven percent felt that the standard labeling of the Nutritional Label or Ingredient List was “Extremely important” or “Very important” with 8.81% stating it was “Moderately important” or “Slightly important.” Only .52% thought it was “Not at all important.”

A combined total of 88.08% replied that they would “Like” it or “Like it a great deal” to see artificial additives or processed ingredients displayed on the label. Eleven point ninety-two percent mentioned they would “Neither like nor dislike” it, and no one said they would “Dislike” it. When asked “Would standardizing the display of artificial additives and processed ingredients on food labels be helpful when making your grocery purchasing decisions?” respondents replied overwhelmingly with a response of “Extremely helpful” (48.82%) and “Helpful” (42.86%). Only 7.74% responded that it would be “Neither helpful nor unhelpful.” No one thought it would be “Unhelpful” and one person thought it would be “Extremely unhelpful.”

Respondents looked on food packaging labels for the product name (26.73%), and the brand name or logo (22.34%) most often. FOP food claims (17.09%), FOP nutritional labels (13.82%) Symbols or certification logos (10.91%) were also designed visuals that respondents looked for on prepackaged food. Only 5.64% looked at the imagery (children’s characters or product image) and 3.45% selected “Other.” In the open text field for the “Other” option, sell-by dates, package size, “free from” labeling and “organic” were among the responses. When shown and asked about the Facts Up Front labeling system (shown in Figure 5) 82.2% were “Familiar”
or “Extremely familiar” with the system. Of those that were familiar with the system 84.08% thought it was “Useful” or “Extremely useful” when making purchasing decisions.

Of all respondents, 64 chose to contribute their thoughts or concerns about artificial additives and processed ingredient labeling in an open text field at the end of the survey. Responses ranged from the mistrust of labels and manufacturing, to overall thoughts on artificial additives or processed ingredients. Some respondents supported the standard labeling of these ingredients and the reasons for this labeling. Others thought these terms were “politicized” and “vague” and expressed the need for more clarity (either in the question asked by the researcher or the term as a discussion point).

A sample of written responses:

- “Everything is so ‘disguised’ these days that I feel powerless, often, as a consumer.”
- “My concern is that the big companies will find a way to skirt around any regulations created.”
- “I assume that most products contain artificial additives and processed ingredients unless labeled otherwise.”
- “Clear and simple labeling is helpful.”
- “I'd prefer if the box for nutrition or the front package says unnatural or has artificial flavor or additives so I can make smarter purchasing choices for a healthier lifestyle.”
- “I think if it had it listed on the front and back it might be more helpful.”
- “I think what would be even more useful is if they tell us exactly what the artificial additive, processed ingredient, and so-called natural ingredients are.”
• “I would like a more descriptive ingredient list without the big scientific words or terminology.”

• “I’d rather more specificity than the general term of ‘processed.’”

**Online survey analysis.** A comparison chart, found in Figure 11, visualizes the variance between previously published secondary research data and the researcher’s primary research data from the online survey. The online survey demographics skewed heavily toward female consumer responses compared to demographics from the *Grocery ShopperImpact MegaStudy* by VideoMining (2017). This has the potential to skew answers to questions regarding artificial additives. As noted in Chapter 2 of this document, women are more concerned about artificial additives than men (Hwang, Roe, & Teisl, 2005). More of the online survey respondents read the Nutrition Facts Label (71%) and the Ingredient List (65%) compared to the combined total of 43% of consumers reading them “Always” or “Almost always” (Borra, 2006). A higher percentage of the respondents identifying as women, and women having more concern, indicates that this pool of respondents is knowledgeable about artificial additives and therefore might have a more profound insight on the subject.
**Figure 11.** Demographic comparison. This chart illustrates the demographic comparison between previously published secondary research data and the researchers online survey primary research data.

Primary shopper demographics and shopping list usage from the online survey, shown in Figure 11, are similar to the findings reported by Lake (2016). The primary shopper is the one that makes the decisions, and in turn, would be most affected by standard labeling changes. Also, the respondents were highly educated, high income, Caucasian, and therefore do not reflect a diverse pool of respondents, but do align with Campos’ et al. (2011) findings that this demographic pays more attention to labels. The age range was vast (18-84), but the majority of respondents were between the ages of 25-54, which is in line with the demographics mentioned.
in Chapter 2. Those demographics proved that the average age of the grocery shopper is 44. These demographics identify an audience to target with standard labeling. They do not, however, reflect all the demographics that would be viewing it in application.

The majority (44.22%) of the respondents found the format of the Ingredient List on prepackaged food easy to interpret. The researcher expected that the Ingredient List would have been difficult to read from anecdotal evidence and secondary research. One concern the researcher had with these results was the visual reference provided in the survey, shown in Figure 10. It was not representative of actual size and also did not contain any artificial additives. If the respondent was only looking at the example and not referring to the Ingredient List on the food they had purchased in the past, the researcher speculates that they were only referencing the visual in the survey and not in actual use on a prepackaged food label. Survey data confirmed that those who did find the Ingredient List hard to interpret “did not understand the definition of many ingredient terms.” The majority of respondents looked for ingredients in the list like “artificial colors” and “artificial ingredients.” They were also curious about what was in their food. These factors tell the researcher that consumers are trying to find this information on the current labeling. The results led the researcher to speculate that the Ingredient List could be changed to facilitate interpretation of which ingredient is artificial and which is not. It would also be helpful to add graphic labeling of artificial additives to packages if consumers are trying to find it now.

The researcher coded and graphed the responses to the questions: “What thoughts or opinions do you associate with the term ‘artificial additive?’” and “What thoughts or opinions do you associate with the term ‘processed ingredient?’” This is shown in Figure 12. The codes used:
• **N = Negative:** Response that was negative, such as: *avoid, bad, chemicals, harmful, not natural, unhealthy,* etc.

• **D = Define:** Response where the participant attempted to define the term, such as “colors, sweeteners, preservatives.”

• **V = Vague:** Responses where the respondent thought the term or question was vague, such as “My only thought is that it is a very vague non-descriptive term.”

• **OK = Neutral:** Responses such as “No strong opinions, but I don’t believe artificial means bad automatically.”

• **R = Reaction:** Respondent had a physical reaction to a specific additive, such as “I know I have a sensitivity to sulfites.”

• **- = No opinion**

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*Figure 12.* Open text field questions data visualization. This chart illustrates the data for question #21 and #22 in the online survey.
Based on the results, it appears that the majority of respondents had an unfavorable view of artificial ingredients (127/183) and processed ingredients (120/176). The majority of written responses are against the use of artificial additives or processed ingredients in food. Respondents felt artificial additives or processed ingredients were fake or chemically based. They try to avoid them when purchasing food. There is an overwhelming dislike or concern for artificial additives and processed ingredients. Conversely, respondents had a positive reaction to the idea of standard labeling artificial and processed ingredients. The researcher speculates that standard labeling of artificial additives on prepackaged food would be beneficial to the consumer’s decision-making while shopping.

Respondents used phrases and words such as: *preservatives, flavor, sugar, usually just color*, and *animal by-product* to define artificial additives. Sugar and animal by-products are not considered artificial additives. This is according to definitions mentioned in Chapter 2. Color is not the only source of artificial additives. The researcher notes that some of these definitions are correct as a whole or in part, but some are not. This could have an impact on how consumers interpret labeling. This is especially true if the consumer is not aware of which ingredients are truly artificial.

The researcher questioned if a consumer only reread the Ingredient List sometimes and not all of the time, would s/he notice an addition or a change in labeling that denotes artificial additive labeling on the package? If a consumer only rereads the list some of the time, an argument could be made for FOP labeling, especially because the voluntary FUF labeling was familiar to the respondents and useful when making purchasing decisions. This use of FOP labeling could be a way to defend graphic representation of the standard label. If this approach
was taken, how would the mistrust for labeling as mentioned by the respondents, affect the interpretation of this labeling?

**Next steps.** The researcher learned that some respondents want to “understand their food.” They favored seeing terms such as “to prevent caking” in the Ingredient List. Some expressed mistrust of manufacturer label misrepresentation. Many respondents were in favor of standard artificial additive labeling and would like to see it displayed on the label. An overwhelming number of respondents said that it would be “helpful” when making purchasing decisions. This was a positive result when referring to the researcher's thesis topic.

Many questions arose as a result of the survey. The researcher wanted clarification on how the answers would affect the consumer decision. These questions were:

1. Is the Ingredient List easy to interpret?
2. Do consumers understand what artificial is?
3. If consumers reread the ingredients only sometimes, when do they reread the label and why?
4. Would separate ingredients broken up by “artificial” and “natural” be beneficial to consumers?
5. How would mistrust of manufacturers (who label ingredients) affect standard labeling of artificial ingredients?

For future research and discussion, the researcher eliminated the phrasing “processed ingredients.” This is due to its complex and vague nature. Many respondents (depicted in Figure 12) commented using the open text fields that “everything is processed to some extent.”
researcher focused efforts on the terminology “artificial additives” so as not to confuse future conversation and research outcomes.

**Focus Group**

The online survey data answered or clarified many questions from the secondary research and observational research. It also generated new areas of inquiry. To address these questions, the researcher conducted a focus group. The focus group, held at Baldwin Wallace University in Berea, Ohio, involved six volunteers who signed audiotape/videotape consent forms. There were 3 females and 3 males. Of the six people in the room, all were married. However, only one participant of the six had their spouse with them. The session was 57:42 minutes long and videotaped. The structure and script were similar to the survey. It consisted of the following sections: Introduction, Shopping Habits, Packaging Labels, Artificial Additives, Artificial Additive Labeling and Conclusion. The script had follow-up questions prepared. These were asked depending on the participant’s answers. Prompts were also ready to provide clarity or further explanation to a response, if needed. During the session the researcher showed the participants prepackaged food items for reference and discussion. For more information about the focus group in this study, including the script and a summary of each question, please refer to Appendix C on page 129.

**Shopping habits section summary.** Questions about shopping habits gauged the level of involvement in grocery shopping for each participant. In the focus group, the participants who identified themselves as the primary shopper of their household were all women. For this focus group, a “primary shopper” was identified as the person who makes the decisions about what to buy before or after arriving at the grocery store, and those who carry out most of the in-store shopping. Participants shopped with their spouses or children. All the focus group participants
with younger children felt distracted when shopping with them. This affected the participants in different ways. One woman menu-planned and followed her list. Another allowed her children to choose produce items at the beginning of the shopping trip. This was to avoid having the children ask for items later in the store. Another noticed that his son (age 10) finds the colorful items placed at his height; these items then make their way into the cart. These items often contain the ingredients that the participant is trying to avoid. Another participant, the father of a three-year old, said that if his child has a meltdown, he grabs whatever he can to facilitate leaving.

**Packaging label section summary.** The participants were shown a box of prepackaged food with only the Nutrition Facts Panel visible. This was to gain an understanding of how these participants used standard labeling. All six participants were familiar with this labeling and read labels to help make decisions while grocery shopping. The Ingredient List was the portion of the label they focused on the most, although some participants mentioned they also looked at the Nutrition Table. Allergens (peanut, gluten, and dairy), added sugar, size of the Ingredient List, and knowing the product’s ingredients were the reasons participants gave for looking at the Ingredient List.

Questions were asked to clarify online survey data about the ease of interpreting the Ingredient List. The participants expressed frustration with the current Ingredient List format. One mentioned it was hard to see, pronounce and understand ingredient names and what they were. The number of ingredients was a concern for one participant. If the list was too long, she would not purchase the product. Others commented on the deceptive nature of manufacturers when labeling food. They cited sugar as an example, noting that multiple words mean the same as sugar, such as “sucralose.” The participant believed this is to trick people into thinking it is
not there. Another participant mentioned that ingredients are worded in a way that “sounds positive,” like enriched flour, knowing that this is a negative ingredient. Another participant liked it when there were parentheses to tell the consumer why the ingredient is there.

Participants were asked if they reread the Ingredient List when repurchasing products they use often. All six participants did not reread the Ingredient List regularly. Two participants mentioned that they would reread a label if the packaging changed. They questioned why the label changed. A single participant noted that with life changes he would reread items. He gave the example that when his son started to eat more adult food, he reread all food packages they had purchased before. Another participant mentioned that she would always reread ketchup container labels. This was because “they are always changing it.”

To learn what the consumer thought about artificial ingredients the researcher asked the participants how they would define them. A participant described artificial ingredients by referencing specific ingredient terms such as “Designer sugars or sweeteners, except for stevia or cane sugars.” He continued to clarify “High Fructose Corn Syrup is derived from natural ingredients, but I would call that artificial.” Other comments were “Outside what I have in my cupboard to cook with” and “Stuff that has been stuck in it, that shouldn't be there, that’s why it is artificial. But usually to either allow it to be made cheaper or last longer.”

The researcher passed out six food packages, four boxes, one can, and one packet, shown in Figure 13. All of the branding and marketing information was covered to have the participants review and give their thoughts on the standard labeling. One participant commented that on his item (can) the word “organic” was in front of every ingredient on the list. When asked how he felt about it, he replied “At first I thought it was okay, but the more I read about it, the more skeptical I become. So when organic is added now, I become more skeptical, look further before
choosing. They try to cater to our wants and desires to get us to buy it and not to our health choices.” Another participant mentioned that she saw an “anti-caking agent” listed in her item’s Ingredient List. She commented sarcastically that she “feels like it is okay because it is just for anti-caking.” Another participant mentioned the same for “TBHQ” (on his item’s Ingredient List). Both thought that because it was listed, that the manufacturers were saying it was acceptable, and for the consumer not to worry about it. The participants had a positive response to seeing the allergens called out in the Ingredient List.

*Figure 13.* Focus group viewing the Nutrition Facts Panel. Screenshot of focus group viewing prepackaged food items with all of the branding characteristics have been covered, directing the focus to the standard labeling. October 30, 2017.

If given the opportunity one participant wanted to change the number of ingredients within the Ingredient List and subsequently in the actual food. She indicated that she wanted to recognize the ingredients in her food. She also acknowledged that many of the ingredients have to be present for distribution. Another participant wanted to see a separation of ingredients to include those that are altered and those that are not. He cited “for freshness” as seen in a label as
a positive, informative step. A participant mentioned it as an incomplete reading list when an Ingredient List has “artificial flavor” listed. This comment received approval in the form of nods and comments from the rest of the group. Another participant cited “natural flavor” on an item in her hand and said that she had concern over the same thing. The lack of description or clarity caused her to question what the flavor use was or what was in it.

The researcher showed the participants unaltered prepackaged food products to facilitate the discussion about other package label characteristics, shown in Figure 14. The items were:

1. Kellogg’s Special K® Vanilla Almond Cereal
2. Pepperidge Farm® Goldfish® Cheddar Colors Baked Snack Cracker
3. SunnyD® Orange Strawberry flavored drink
4. General Mills® Cinnamon Toast Crunch cereal
5. SimplyNature® strawberry toaster pastries
6. Progresso® Minestrone canned soup
7. Gerber® Graduates Lil’ Entrees® Macaroni & Cheese
8. SimplyNature® Organic Tomato Basil jarred pasta sauce
9. Barilla® whole grain boxed spaghetti
10. Barilla® boxed spaghetti
The participants were not impressed by the FOP claims. One participant questioned who defines claims such “low fat” or “organic.” Another pointed to the claims “No High Fructose Corn Syrup,” “No Artificial Sources,” and “No Artificial Flavors” found on the Cinnamon Toast Crunch box. His initial thought was that it was positive to see these claims. When he turned over the package and saw the extensive Ingredient List he questioned the validity of the FOP claims. Another participant did not favor the claims mentioned previously but did look specifically at labels for gluten, due to an allergy in her household. She stated that “in order to have labeling on the front it has to be certified.” She was unaware of who certified it but felt that if it was listed, it had to be certified and trusted it. She qualified the USDA Organic logo, shown in Figure 15, the same way. It did not mean as much to her personally, but she felt it was positive and trustworthy.
Figure 15. USDA Organic seal. Visual of the USDA logo a focus group member referenced during discussion. March 21, 2018.

When referring to Special K® Vanilla Almond boxed cereal, shown in Figure 16, a participant noted that the words “Naturally and Artificially Flavored” would tell him to put it back on the shelf. Another participant highlighted the image of fresh fruit and the “100% Vitamin C” located on the front of a SunnyD® fruit flavored drink label, shown in Figure 17. His initial reaction was that it is good for you because of the imagery and claim on the FOP, yet when he turned the bottle over it only contained 5% juice. He felt it was fake and made him skeptical of the product and messaging.

A discussion started about color additives. A participant found it interesting that watermelon juice was an ingredient in Pepperidge Farms® Goldfish® Color baked crackers. Another participant was happy that manufacturers were removing the synthetic dyes from food and using another coloring such as paprika or turmeric. Participants were glad to see artificial ingredients being removed from prepackaged food. They are still skeptical of the manufacturers and did not want to take the manufacturer’s “word for it.”
Figure 16. Special K® Vanilla Almond cereal. Visual of the label a focus group member was referring to during discussion. March 10, 2018.

Figure 17. SunnyD® Orange Strawberry flavored drink. Visual of the label a focus group member was referring to during discussion. March 10, 2018.
Artificial additive section summary. The discussion about artificial additives was initiated by reading the definition of a food additive taken from *The Miscellaneous Food Additives Regulations 1995* (Legislation.gov.uk, n.d.) which states:

> Any substance not normally consumed as a food in itself and not normally used as a characteristic ingredient of food, whether or not it has nutritive value, the intentional addition of which to food for a technological purpose in the manufacture, processing, preparation, treatment, packaging, transport or storage.

(Interpretation section para 1.)

All six participants were concerned about artificial additives in their food. Two out of the six mentioned that they try to avoid them within reason. They did make exceptions for food they enjoy, or for convenience. Artificial sweeteners and TBHQ (Tertiary Butylhydroquinone) were explicitly mentioned as ingredients two participants looked to avoid in their diet.

The participants all carried a smartphone with them when they shopped. Three of six used it for housing their shopping list. There was not a significant response to using their phone to look up ingredients that they did not know while in the store. One participant said she would, but the other said it would be too difficult for her with her children with her. Two of the men use their phone to text their wife to check if an item they are purchasing is acceptable.

Artificial additive labeling section summary. The researcher asked a series of questions that focused on the possibility of standard artificial additive labeling. All were in favor of standard artificial additive labeling on prepackaged food products, with a participant replying “anything to make it easier.” The person explained that if you could see an ingredient, such as TBHQ, it would be easier to make a decision when purchasing. Participants recommended the
standard labeling be on the front of the package in a highly visible area, such as the upper right corner of a package. One participant suggested that the labeling be tied to serving size.

When asked if a manufacturer would be honest with the consumer about what was in their company’s food (and therefore label it correctly) four out of six laughed and said “no” or “not necessarily.” Another commented, “to the extent of the law that requires them to be honest.” Another participant mentioned “it’s what they can get away with.” Participants had trouble naming manufacturers that they trusted. They focused on a brand or products they distrusted. An example given was Hostess or Little Debbie (McKee Foods). The participant thought that if a product could sit on a shelf for two years and not spoil she could not trust the company. Another said that they judge based on the specific food and not by manufacturers, specifically companies that make a variety of food. She did not base her decisions on the manufacturer, but instead on the food product. Another participant commented on “private label brands.” He bought them because he thought they were not mass produced. He then realized that all these foods “came from the same source with different labels.” One participant said that she trusted the company, Hodgson Mill. She explained that everything was organic and liked a particular item in their product line. The participants did feel that the standard labeling of the Nutritional Facts Panel (Nutritional Table and Ingredient List) was believable and trustworthy.

All participants wanted to see the artificial additives designated in the Ingredient List in some way. One suggested bold and another mentioned separating them into groups. A different participant wished to maintain the order that the ingredients were in so that he could gauge how much of the artificial ingredient was in the food item. There was verbal agreement by a separate participant and nods from others. One participant mentioned that they wanted to see the use of
artificial ingredients designated on the label and that viewing a list of artificial ingredients (especially on the front of the package) did “not mean anything to him.” Others agreed.

When asked if they would like to see the standard labeling of artificial additives in a logo format, a participant responded with “it might make it easier.” A different participant expressed the thought that companies would not be in favor of making the logo large and visible. Instead, they would want it small so the consumer would have to search for it. To that, another participant commented “But wouldn’t that be more believable? If it has to be on something and it is not on this one, the absence would be telling...if they had to put the label on there, I would trust it more.”

Other comments on standard graphic labeling of artificial additives were:

- “We would trust it more if it has to be on there, people can make a decision based on their lifestyle.”

- “Standardized logo or icon would be good...that would be my visual trigger to go to it to see what exactly what it is. It would help me make a better consumer decision...but I am not sure that that would be what the manufacturers would want.”

- “I like it standardized, because otherwise it just starts to look like their promotional efforts. So if it was across the board, like the nutritional label or the organic seal, so you would know it’s not just General Mills® trying to tell me this. The authoritative nature comes from this.”

As a final thought, one participant mentioned that the consumer has the power. She exclaimed that in the past few years she has noticed dyes removed from food and that is due to
people reading labels and speaking out. In agreement, another mentioned how companies might be feeling the effects of consumer buying power on their bottom line.
Chapter IV

Implications

This thesis combined the perceived public concern and research of artificial ingredients, processing and packaging of mass-produced food with the vast amount of secondary and primary research of food package labeling. The researcher noticed early in the process that this topic included many facets, from verbal claims, voluntary graphic FOP labeling, public perception and knowledge, standard labeling regulation, and governing bodies.

The steps with which the researcher chose to investigate this thesis were not linear. While one step led to the next, there was a back-and-forth of secondary research. This led to the new development of primary questions that would determine the primary methods of research. The primary research revealed insights that the researcher had not considered at the outset of the investigation. These insights helped make an overall conclusion that standardized graphic labeling of artificial food additives would inform and influence the consumer when making purchasing choices.

Analysis and Defense

The focus group was the culmination of both primary and secondary research data. The focus group examined how standardized graphic labeling of artificial food additives informs and influences the consumer in his or her purchasing choices. Similarities between the online survey results and the focus group results solidified, for the researcher, the public concern surrounding artificial additives. Primary research data showed that consumers have an overwhelmingly negative opinion of artificial additives. Consumers concerned about these additives try to avoid them when shopping. A focus group participant highlighted the presence of the words “Natural and Artificially Flavored” on the front of a box of cereal. He mentioned it would influence his
purchase decision when he read it while shopping. The researcher notes that only flavoring highlighted does not illustrate complete labeling of artificial additives. The researcher hypothesizes that *highlighting the presence of all artificial additive ingredients on food labeling would be utilized by consumers and influence them when shopping.*

**Standardizing artificial additive labeling.** Survey and focus group data confirm that consumers utilize the Nutrition Table and Ingredient List, the required standardized package labeling, when shopping. However, just because it was standardized did not mean they did not have concerns over its format. Contrary to the survey data, the focus group participants did not feel the Ingredient List on prepackaged food was easy to interpret. There were varying reasons for this frustration, but the length of the list, and the complicated ingredient names were most cited.

Participants alleged that manufacturers were trying to deceive the consumer by trying to “hide” ingredients. Participants believed they do so by breaking down an ingredient into multiple parts and listing it in the Ingredient List that way. Sugar was cited as an example. Instead of the word “sugar,” fructose or sucrose appear. Another example of a hidden ingredient might be an ingredient labeled “artificial flavor” or “natural flavor.” Participants wondered what was in the “flavor” and why it was not specified on the label. A statement of artificial flavor or natural flavor is a requirement that must appear in the ingredients list (FDA, 2017-b), yet it is not required to list what makes up the flavoring.

The mistrust of manufacturers was repeatedly referenced in the focus group discussion of the Ingredient List and FOP labeling. Participants felt as if the manufacturer was trying to cater to what a consumer wants to see. They referenced the repeated use of the term “organic” in the Ingredient List on a food item. This drew skepticism from the participant. He wondered why the
manufacturer had to mention it so many times. Participants felt that verbal claims like “No High Fructose Corn Syrup” were marketing ploys to get them to buy the product, especially if the product still contained a high amount of sugar. The majority of participants did not read these as positives. They questioned why it had to be on the package all. Mistrust extended to the production of food, not just the labeling. Participants felt that manufacturers use artificial additive ingredients to make the food cheaper. They suggested the benefit was not for the consumer but for the manufacturer.

Secondary research has illustrated that there are FDA standards or rules for labeling of “artificial flavoring” or “natural flavoring” on the FOP. However, only flavoring must be highlighted on the FOP. Coloring, preservatives, or other artificial additives used in the making of the product do not need to be labeled on the FOP. As a result, the visual standard varies per item depending on the graphic design of the package with the verbal representation: “in letters not less than one-half the height of the letters used in the name of the food” (FDA, 2017-b, para. 26). This text varies from package to package depending on the designed visual of the “name.” Typeface, weight, and color can vary. Therefore, the standard requirement of the labeling might not appear to be standard to the viewer.

The researcher felt concern that any labeling might be met with distrust. However, as much as there was distrust of the manufacturer, primary data showed that consumers trusted and valued the standardized format of the labeling. Even with their frustration over the formatting of the Ingredient List, participants felt that because the law requires it, it must be trustworthy. The standardization of this information separated it from promotional or marketing efforts. Another participant commented on a product with the claim “gluten-free,” stating that it had to be “certified” to label it that way. She admitted that she did not know who certified it, but just
“knew” to be on the package it must be. She trusted this idea of the item being certified. She referenced the USDA Organic logo as well. The presence of an authoritative body made her feel she could trust the labeling. Focus group participants trusted individual food product over the manufacturer. They do not purchase because a manufacturer made it, but because of what the product is and what is in it. From this evidence, the researcher concludes that standardizing the labeling of artificial additives would be trustworthy and, therefore, believable to the consumer.

**Graphic format of artificial additives.** The researcher recognizes the existence of FDA standard labeling of artificial additives, as outlined in Chapter 2. As mentioned previously, all ingredients must be listed using their common and usual name in the Ingredient List. This investigation has revealed, however, that there is still confusion over the Ingredient List. Focus group participants felt the common and usual name of an ingredient might not always be intuitive or descriptive enough for the consumer. Other regulations, such as listing the function of a chemical preservative within the Ingredient List (FDA, 2013), do not apply for other artificial additives used in food. An example is nutrients. The focus group participants favored the listing of the function and wanted to see this approach for all the artificial ingredients. Colors must appear on the list, but, the FDA considers that all coloring added to food is artificial, even if derived from a natural source. A consumer might see the term “artificially colored” and not realize the coloring is from beets and not from a synthetic dye. Lack of clarity on food labels can widen the gap between understanding and confusion. These things, coupled with the small, all-caps “wall of gray,” as stated by a participant, visual format of the Ingredient List do not help the consumer determine which ingredients are artificial.

Participants were in favor of a standard logo to act as a “visual trigger” to look further to see what the artificial additive was. Participants compared the idea of a standard artificial
additive symbol or logo to the USDA Organic logo or the Nutritional Facts Panel. Participants thought it would be easier to see. This researcher believes that a graphic format of the standard labeling would serve as a signifier to the consumer that the food item did contain artificial additives and, therefore, could help to inform their decision-making.
Chapter V
Discussion and Conclusion

Based on research, the graphic standard labeling of artificial additives would inform and influence a consumer when making purchasing decisions. To become standard, this graphic labeling needs to be regulated by the FDA and USDA, the governing bodies that control our current food label packaging.

There are many forms this “graphic” version of standard labeling could take. As mentioned in Chapter 1, time, and the need for additional research of different demographics provided a limitation to developing a “new standardized graphics labeling” system. In this chapter the researcher suggests ways to circumvent the problem of how to represent this in a graphic form. For this graphic investigation, the researcher proposes that the USDA’s definition of synthetic (cited in Chapter 2) to define “artificial” should include coloring, flavoring and preservatives. This definition not only cites “manufactured by a chemical process” but also includes “a process that chemically changes a substance extracted from naturally occurring plant, animal, or mineral sources” (USDA, 2012).

The USDA’s definition, as stated in Chapter 2, of “natural” could also be used for the proposed graphic examples. The USDA defines natural as “a product containing no artificial ingredient or added color and is only minimally processed” (USDA, 2011). The use of this definition could eliminate such ingredients as “enriched flour” or High Fructose Corn Syrup” as defined as natural. Also, many consumers use the term “processing” to refer to artificial ingredients. The researcher chose not to use this term to avoid ambiguity in this thesis investigation, and so, did not use it in the proposed graphic suggestions. The researcher does
recognize that the processing of ingredients of all types, natural and artificial, can be a concern to a consumer.

The researcher suggests that additional extensive research, user-testing, and discussion are needed to implement these or other graphic options.

**Option #1: Combination Icon Model**

The researcher chose to model a standard graphic icon of artificial additives after a combination of a nutrient-specific system, and summary or scoring system. As mentioned in Chapter 2, a summary or scoring system rates the food and the nutrient-specific system uses symbols to represent nutrients on the FOP. The researcher suggests these systems could represent the artificial (synthetic) additive ingredient makeup. The intention is to inform the consumer what percentage of the food item is synthetic or contains artificial additives. Even with this option being a combination of the nutrient-specific system, and the summary or scoring system, this icon leans toward the nutrient-specific model. Current FOP systems are voluntary and not regulated by the FDA. The researcher proposes that this system be implemented and regulated by the FDA, becoming standardized.

Figure 18 illustrates an example of the proposed icon system. The icon highlights the natural ingredient percentage or the artificial ingredient percentage of the food item. Extensive testing is needed before determining which of these approaches would work best. The researcher speculates that manufacturers would prefer to see the word “natural,” and the consumers would prefer to see the word “artificial.” The solid part of the icon would be representative of the word displayed in the center. For example, if the word “natural” appears, that part of the icon would be solid.
Color choice. Like the USDA Organic seal, the icon should be in color. As shown in Figure 19, the color green represents the ingredients that were not artificial in the food product. The color green in the current U.S. culture can mean many things, including sustainability and health (Klimchunk & Krasovec, 2012). The color orange represents the artificial additives within the food product. Orange is of cautionary nature and a warm color. A single color version of the icon should appear where colors are limited due to design purposes or production cost saving needs.
Figure 19. Option #1: Colors. Suggested colors for Option #1, combined icon model.

Graphic detail. Diagonal lines, shown in Figure 20, create motion and suggest to the viewer the dynamic nature of its representation. They create visual interest to pull the viewer's eye to the icon. Diagonal lines differentiate between the two areas of the icon. The lines aid the viewer in the visual separation of each section, primarily when one color option might be shown on a package. It will also help add contrast and accessibility for color-blind individuals.

Figure 20. Option #1: Graphic detail. Suggested graphic details for Option #1, combined icon model.

Typeface choice. The sans serif typeface, Helvetica LT Std, (shown in Figure 21) is the font family used in this icon. This typeface is clean and simple and coordinates with the strong
diagonal lines. Helvetica LT Std has minimal thick and thin variation within the strokes of each character, and a large x-height. These characteristics reduce confusion between glyph interpretation and recognition. Helvetica is the typeface used on current standard labeling in the United States. This could present a familiarity and comfort level for the viewer. It will separate the icon from promotional or marketing efforts. The researcher chose Black Condensed for the label of “natural” or “artificial.” The condensed width allows for a larger point size in a small space. Helvetica LT Std Black is used for the numeral. This weight commands a formidable presence on the icon. This attracts the viewer’s attention. Helvetica LT Std Extra Compressed represents the percentage (%) character. This weight adds contrast, which differentiates the % character from the number, but still presents a unity between the typefaces. The compressed font also allows for a larger point size, displayed in a smaller space.

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<table>
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</tr>
<tr>
<td>1234567890~!@#$%&amp;*()+-=,./&gt;;&quot;'{}[]</td>
</tr>
</tbody>
</table>

Figure 21. Option #1: Type study. Suggested typeface for Option #1, combined icon model.

**Location on package.** Based on this investigation, participants rarely reread the Ingredient List when buying a product which they had previously purchased. Focus group
members mentioned that only when the package design changed, did they reread labels. Some paid attention to what they perceived as certified labeling or other regulated logos on the FOP. Given the lack of reading after purchasing, but the attention paid to the package design, the researcher suggests the FOP for the location of the standard graphic labeling.

Children distracted online survey respondents and focus group participants while shopping. This distraction did affect how the participants read labels while at the grocery store. If children were acting up, they did not read labels because they were trying to leave the store as quickly as possible. Others said that looking up ingredients definitions or usage on a smartphone is too tricky with young children. If the proposed standard graphic label is positioned on the FOP, it might also help a distracted shopper to understand how much of the product contains artificial additives without having to decipher the ingredients list.

The researcher suggests placing the icon close to another standard labeling element, such as the weight on the package on a box of Kellogg’s® Pop-Tart® in Figure 22. Placement of the icon by another voluntary labeling such as FUF could also be utilized to draw the consumers’ attention as shown mocked up on a Coca-Cola® can in Figure 23. When used on products that had no artificial additives, such as Smucker’s® Organic Peanut Butter, the icon would have no diagonal lines as shown in Figure 24. *The percentages in Figure 22, 23 and 24 are estimations and not an accurate representation of how much artificial ingredients are in each food item.*
Figure 22. Option #1: Icon mockup on Kellogg’s® Frosted Strawberry Pop-tarts®. March 10, 2018.

Figure 23. Option #1: Icon mockup on a can of 12oz. Coca-Cola®. March 10, 2018.
Option #2: Combination Thumb Model

Similar to Option #1, the researcher chose to model Option #2 after a combination of a nutrient-specific system and summary or scoring system. Option #1 leans towards the nutrient-specific model, but Option #2 (shown in Figure 25) leans toward the scoring or summary model. In addition to informing the consumer what percentage of the food item contains synthetic or artificial additive ingredients, this option uses a “thumbs up” or “thumbs down” symbol to show the consumer if the amount of artificial ingredients in the food item is acceptable. The “thumbs up” symbol means that the food item has little to no artificial additive ingredients. No thumb is neutral, meaning the item contains artificial additives but is an acceptable amount. A “thumbs down” symbol should elicit a feeling of caution. This graphic system requires determination of a threshold amount of artificial additives for each category.
Figure 25. Option #2: Combination thumb model. An illustration on the proposed graphics for Option #2.

The typeface and colors are the same as used in Option #1. An example of this system in use on a product is shown on a Pepperidge Farms® Goldfish® snack crackers package in Figure 26. *The researcher has estimated the percentage for illustration and demonstration, “5% Artificial” is not an official percentage.*
Option #2: Mockup on Pepperidge Farm® Goldfish® baked crackers. March 10, 2018.

Option #3: Facts Up Front Model

The researcher chose to model a graphic system labeling artificial additives, after the nutrient-specific FOP model, Facts up Front. The researcher suggests this system could be modified to add a symbol(s) representing total artificial (synthetic) additive ingredient makeup, artificial preservative percentage, and artificial color percentage as seen in Figure 27 (Facts Up Front, n.d.-b). This proposed graphic representation would inform the consumer what percentage of the food is made up of synthetic or artificial additive ingredients, as mentioned in Options #1 and #2. The current FUF system is positioned on the FOP. Currently, the FDA does not regulate FUF. Research shows consumers are familiar with the system and utilize it. The researcher proposes that this system be implemented and regulated by the FDA and, therefore, become standard. An example of this system in use is shown on a box of Duncan Hines® Classic cake
mix in Figure 29. *The researcher has estimated the percentage for illustration and demonstration,* “35% Artificial Additives and 2% Artificial Colors” is not an official percentage.

*Figure 27.* Option #3: Proposed Facts Up Front system. This illustrates an example of the proposed icon system utilizing the existing Facts Up Front labeling scheme. Original Facts Up Front label system Reprinted from *Facts Up Front* website, n.d. Retrieved October 31, 2016 from http://www.factsupfront.org/
Ingredient List Incorporation

The Ingredient List plays an essential role in the consumer’s evaluation of a food product. The use of graphic standard labeling, in combination with a redesigned Ingredient List that designates artificial ingredients, could maximize comprehension and utilization. Within the focus group, a participant mentioned, to the agreement of others, that he liked when the function was listed after an ingredient. He gave the example of “for freshness” when referring to a food item.

The researcher also notes that all participants found it helpful when an allergen was listed in the Ingredient List. No one questioned this labeling or found it to be dishonest. Participants continually suggested the idea of separating the artificial ingredients from the other ingredients.
in the Ingredient List. Another suggested visually illustrating a difference between them and the others suggested using a visual designation, such as a bold face.

The researcher proposes that in addition to an icon on the FOP, a revision of the Ingredient List is made. The hypothesis is that the researcher’s proposed options will work in conjunction with the Ingredient List. This presents a two-fold approach. From the front or the side/back of the package, the standard labeling would indicate how much artificial additives are in their food. In addition it would indicate which ingredients are artificial.

The Nutrition Facts Panel, shown in Figure 29, has two proposed altered Ingredient Lists. The researcher kept the existing typeface, all-cap characters, weight, and size but highlighted the artificial additives with a bold typeface in one example and underlined the artificial additives in another. This would allow for a manufacturer to occupy the same amount of space on the label, therefore, not altering other areas of the label. Manufacturers voluntarily use boldface to highlight specific ingredients within the list, such as allergens.

The researcher produced another option (shown in Figure 30) with the artificial additives in bold and the functions of each artificial additive listed in parenthesis. This is the current format for listing chemical preservatives in the Ingredient List. Respondents to the online survey and focus group participants continually stated a desire to know what artificial additives were used for in their food. The researcher kept the same typeface, but changed the font from a condensed version, utilized initial caps for each word, and left aligned the copy. This reduces distracting rivers and pools within the text and allows for a more natural reading of the Ingredient List.
Figure 29. Proposed Ingredient List alteration mockup. Altered Ingredient List mockup from a bottle of Dannon® Light & Fit Mixed Berry Protein Smoothie. March 21, 2018. The researcher estimated which ingredients were artificial.
Figure 30. Proposed Ingredient List function mockup. Suggested artificial additive and function Ingredient List on a bottle of Dannon® Light & Fit Mixed Berry Protein Smoothie. March 21, 2018. The researcher estimated which ingredients were artificial.

**Conclusion**

The proposed solutions are the first step to further research and testing of standard graphic labeling of artificial additives on food packages. The researcher believes that the graphic symbol
would be more effective with the incorporation of an altered Ingredient List. The standard labeling of artificial additives could go a long way to easily inform a consumer who is trying to avoid artificial additives. It would also allow him or her to see what food products contained these additives. The researcher hypothesizes that it might also influence consumers, who are not familiar with artificial additive ingredients, to take notice of them in prepackaged foods. Considerable discussion depends on consistent terminology from regulating bodies, education of a consumer on the manufacturers’ use of ingredients. Further discussion and exploration are needed to understand the visual form this labeling would take in application.
Appendix A

Observational Research Field Notes
Giant Eagle Market District, Strongsville Ohio.
Monday, June 26, 2017, 9:47 am - 10:41 am

**General observations:**

1. A full-service grocery store that was not very crowded, quiet and spacious with wide aisles.
2. The majority of the consumers were mothers with young children and senior/retired aged women.
3. **Audience:** Middle-class suburban neighborhood.
4. **Questions:** Did the consumers not look at ingredients/nutritional information because they have previously purchased/consumed the product and are aware of what is in it?
Consumer 1: Muscular male, mid-thirties, bald, tattoos on the arm, wearing blue jeans, fitted t-shirt, and black shoes.

1. Shopping in the frozen section, looking closely at the front of the frozen Weight Watcher Smart Ones packages (approximately 30 seconds).
2. Did not turn the package over/sideways.

Consumer 2: Woman in workout clothing, mid-thirties, long hair, wearing sandals.

1. Grabbed natural (Nestle) creamer, Yoplait yogurt, and sour cream.
2. Did not turn the package over/sideways.
3. Did not study the Front of Package (FOP).
4. Had a cell phone in her hand.
**Consumer 3:** Woman with two young girls. She was casually dressed. Older of the two girls was trying to help with the shopping, picking up items mom wanted to buy, youngest was in the cart.

1. Grabbed cage-free eggs, sour cream, and yogurt.
2. Did not look at the back of any packages.
3. Did not look extensively at the FOP.
4. Had a cell phone in hand while pushing cart and managing children.

**Consumer 4:** Woman and man, late twenties, appear to be a couple. Dressed casually, walking with cart and chatting before stopping in cereal/granola bar aisle

1. Man on his cell phone.
2. The woman grabbed a box off the shelf.
3. Neither looked at the side or back of the package.
4. Neither spent extra time on FOP.
Consumer 5: Middle-aged woman in casual dress, ponytail and shopping basket.
   1. Picked up Minute Rice and spent 20 seconds looking at the front of the package.
   2. Did not turn the package over or to the side.
   3. Put the rice in the basket.

Consumer 6: Woman in mid-late sixties, casually dressed
   1. Looked for taco seasoning packets.
   2. Did not turn the package over.
   3. Did not look at the FOP other than to determine it was Ortega.

Aldi, North Olmsted Ohio.
Tuesday, June 27, 2017, 9:47 am - 10:56 am

General observations:
The store was not very crowded; small, self-serve with wide aisles. A quarter deposit for the cart, items are still in shipping boxes, bag your groceries and bring your bags. The majority of the consumers were mothers with young children and senior/retired aged women.
1. **Audience:** Middle-class suburban neighborhood.

2. **Questions:** Does being in a hurry hinder/prevent the consumer from reading the backs of boxes?

**Consumer 1:** Woman/Mother and young son (in mid-thirties, son age 1-2 years of age). Mother and son casually dressed, paper list in hand.

1. As her son was calling for her, the woman looked at two packages for approximately 30 seconds, she did not turn either package over.

2. Soon after that, she picked up a bottle of salad dressing and turned it over to inspect the back of the item. She then put the dressing back on the shelf. She picked up another salad dressing, read back of bottle and put it back. She repeated this for a third time and then placed the last bottle in her cart.

3. She read the back of a spice bottle and put the item back on the shelf.
Consumer 2: Woman with young toddler girl (daughter). Casually dressed, full shopping order, crisscrossed the store multiple times, cell phone in hand.

1. The woman looked at a few box fronts for approximately 10 seconds.
2. She flipped a package one time to inspect the back of the food package.
3. She appeared happy with child, talking, not in a hurry.

Consumer 3: Senior Man, approximately 70-80 years of age, dressed in a white cap, dark jacket, and slacks, pushing a cart.

1. Looked extensively at the front of a package of oats (baking section).
Consumer 4: Man with gray beard, casually dressed. No cart, holding a reusable shopping bag and paper list.
   1. Picked up a can and turned it around to study label.

Consumer 5: In shape middle-aged woman, in workout clothes (shorts and a fitted tank top) and visor. She appeared to have come from or was going to work out.
   1. Appeared to be in a hurry.
   2. Did not turn over any packages.
   3. Did not look extensively at the FOP.
Heinen’s, Strongsville Ohio.

Wednesday, June 28, 2017, 9:13 am - 9:34 am

General observations:
The store was not crowded (almost empty), clean, wide aisles and spacious. Very few customers were shopping. Most of the consumers were senior/retired aged.

1. **Audience:** Middle/upper-class suburban
2. **Questions:** I will need to revisit the store at a busier time to gain a good understanding of shopper’s habits.
Consumer 1: Woman in 40’s. Casually dressed, hair tied back, sneakers.

1. Woman picked up pasta and looked at the front of the package for about 5 seconds. She did not turn the package over. She placed the item in her basket.

2. The woman picked up a canned food item (tomato sauce) and looked at the front of the can for approximately 5-7 seconds. She did not rotate the can to view the back. She then put the can in her basket.

Consumer 2: Woman, casually dressed, gray sweatshirt, black leggings and flip-flops.

1. Woman picked up a package of hotdogs and studied the front of the package and put it back on the shelf. Then she picked up another and studied the front of the package and placed 2 in her basket.

2. The hotdog packages do not have anything on the back, all the information (logos, claims, name and nutritional labeling is on the front).
Marc’s, Cleveland (Westpark) Ohio.
Friday, June 30, 2017, 9:30am - 10:45am

General observations:
The store was semi-crowded, extremely cluttered, disjointed, unorganized and small. Many aisles were small in width and length.

1. There was a mix of consumers: retired and senior women, older couples, middle-aged women coming from work (medical field of some sort, scrubs on), and retired/senior single men.
2. The store had a large number of customers, not overcrowded, but there was a constant stream of consumers.
3. Audience: Middle-class and urban neighborhood.
**Consumer 1:** Woman in 40’s. Casual/business casual dress, Caucasian, she had no visible list present.

1. The woman picked up Cheez-Its and did not turn the package over or look at the front for an extended period.
2. She turned over a box of granola bars and read, put it back, picked up another box repeated, did not purchase.

**Consumer 2:** Woman, African American, business casual dress, hair tied back, no visible list present.

1. Looked at bread, picked up bread and did not read any labels.
2. Repeated with rolls, no list.
Consumer 3: Senior Caucasian woman who was casually dressed, holding paper list.
1. Looked at a package of gum, did not pick the gum up while looking.
2. Chose flavor/brand and placed in the cart.

Consumer 4: Grandma and pre-teen or young teenage granddaughter, together, casually dressed, Caucasian, paper list in grandmother's hand.
1. The younger girl was reading a label for the older woman of individual chocolate cakes.

Consumer 5, 6 & 7: I had trouble photographing people in this store. The store was small, and there were not many opportunities.
1. The older man looked at the front of bread for about 15 seconds, picked up bread and turned the package sideways for a moment.
2. Middle-aged man #1 grabbed bread and rolls (3 bags), lingering at bread but did not read labels.
3. Middle-aged man #2 did the same with another brand of bread, went right to brand did not linger, grabbed the bread he wanted, he looked to be in a hurry.
Appendix B

Online Survey Results
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## 4 - My age is

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### 5 - I am

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<td>4</td>
<td>Separated</td>
<td>0.99%</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>Never married</td>
<td>18.72%</td>
<td>38</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>100%</td>
<td>203</td>
</tr>
</tbody>
</table>

### 6 - Highest level of education completed

<table>
<thead>
<tr>
<th>#</th>
<th>Answer</th>
<th>%</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Less than high school</td>
<td>0.00%</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>High school graduate</td>
<td>4.43%</td>
<td>9</td>
</tr>
<tr>
<td>3</td>
<td>Some college</td>
<td>8.37%</td>
<td>17</td>
</tr>
<tr>
<td>4</td>
<td>2-year degree</td>
<td>7.88%</td>
<td>16</td>
</tr>
<tr>
<td>5</td>
<td>4-year degree</td>
<td>39.41%</td>
<td>80</td>
</tr>
<tr>
<td>6</td>
<td>Professional degree</td>
<td>37.44%</td>
<td>76</td>
</tr>
<tr>
<td>7</td>
<td>Doctorate</td>
<td>2.46%</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>100%</td>
<td>203</td>
</tr>
</tbody>
</table>
7 - Including my own income, our gross (before taxes) annual household income is

<table>
<thead>
<tr>
<th>#</th>
<th>Answer</th>
<th>%</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Less than $10,000</td>
<td>2.46%</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>$10,000 - $19,999</td>
<td>1.48%</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>$20,000 - $29,999</td>
<td>1.48%</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>$30,000 - $39,999</td>
<td>6.40%</td>
<td>13</td>
</tr>
<tr>
<td>5</td>
<td>$40,000 - $49,999</td>
<td>4.93%</td>
<td>10</td>
</tr>
<tr>
<td>6</td>
<td>$50,000 - $59,999</td>
<td>8.87%</td>
<td>18</td>
</tr>
<tr>
<td>7</td>
<td>$60,000 - $69,999</td>
<td>7.39%</td>
<td>15</td>
</tr>
<tr>
<td>8</td>
<td>$70,000 - $79,999</td>
<td>7.39%</td>
<td>15</td>
</tr>
<tr>
<td>9</td>
<td>$80,000 - $89,999</td>
<td>7.88%</td>
<td>16</td>
</tr>
<tr>
<td>10</td>
<td>$90,000 - $99,999</td>
<td>8.87%</td>
<td>18</td>
</tr>
<tr>
<td>11</td>
<td>$100,000 - $149,999</td>
<td>26.11%</td>
<td>53</td>
</tr>
<tr>
<td>12</td>
<td>More than $150,000</td>
<td>16.75%</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>100%</td>
<td>203</td>
</tr>
</tbody>
</table>

8 - Are you the primary grocery shopper for your household?

<table>
<thead>
<tr>
<th>#</th>
<th>Answer</th>
<th>%</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Yes</td>
<td>64.36%</td>
<td>130</td>
</tr>
<tr>
<td>3</td>
<td>No</td>
<td>13.86%</td>
<td>28</td>
</tr>
<tr>
<td>2</td>
<td>I am not sure</td>
<td>0.50%</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>I share this responsibility with someone else</td>
<td>21.29%</td>
<td>43</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>100%</td>
<td>202</td>
</tr>
</tbody>
</table>
9 - How often do you or someone in your household shop for groceries?

<table>
<thead>
<tr>
<th>#</th>
<th>Answer</th>
<th>%</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Daily</td>
<td>1.49%</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>Once a week</td>
<td>43.07%</td>
<td>87</td>
</tr>
<tr>
<td>3</td>
<td>2-3 times a week</td>
<td>47.52%</td>
<td>96</td>
</tr>
<tr>
<td>4</td>
<td>Once every 2 weeks</td>
<td>4.46%</td>
<td>9</td>
</tr>
<tr>
<td>5</td>
<td>When I need something</td>
<td>3.47%</td>
<td>7</td>
</tr>
<tr>
<td>6</td>
<td>Never</td>
<td>0.00%</td>
<td>0</td>
</tr>
<tr>
<td>7</td>
<td>Other</td>
<td>0.00%</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>100%</td>
<td>202</td>
</tr>
</tbody>
</table>

10 - Other than yourself, who do you grocery shop for in your household? (Check all that apply)

<table>
<thead>
<tr>
<th>#</th>
<th>Answer</th>
<th>%</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Children</td>
<td>28.87%</td>
<td>84</td>
</tr>
<tr>
<td>2</td>
<td>Spouse</td>
<td>48.45%</td>
<td>141</td>
</tr>
<tr>
<td>3</td>
<td>Parent</td>
<td>4.12%</td>
<td>12</td>
</tr>
<tr>
<td>6</td>
<td>Roommate</td>
<td>12.03%</td>
<td>35</td>
</tr>
<tr>
<td>7</td>
<td>Other</td>
<td>6.53%</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>100%</td>
<td>291</td>
</tr>
</tbody>
</table>

Other - Text

- Grandchildren
- Brother
- I don’t do the grocery shopping
- Pets
- Significant Other
- Boyfriend
Pets
Sister
Sister
Partner
Dogs
Myself only, unless I have dinner parties.
Partner
Boyfriend
Friend without a car
Pet
Boyfriend, cats
Adult children

11 - When you grocery shop, who do you primarily shop with? (Check all that apply)

<table>
<thead>
<tr>
<th>#</th>
<th>Answer</th>
<th>%</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Spouse/Partner</td>
<td>28.64%</td>
<td>61</td>
</tr>
<tr>
<td>2</td>
<td>Children</td>
<td>22.54%</td>
<td>48</td>
</tr>
<tr>
<td>3</td>
<td>Roommate</td>
<td>1.88%</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>No one, I shop alone</td>
<td>43.19%</td>
<td>92</td>
</tr>
<tr>
<td>5</td>
<td>Other</td>
<td>3.76%</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>100%</td>
<td>213</td>
</tr>
</tbody>
</table>

Other - Text
Parent
Parents
Sometimes with husband and sometimes alone
Neighbor and her kids
12 - When grocery shopping with children, how likely are you to become distracted during your trip?

<table>
<thead>
<tr>
<th>#</th>
<th>Answer</th>
<th>%</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Extremely likely</td>
<td>31.25%</td>
<td>15</td>
</tr>
<tr>
<td>2</td>
<td>Likely</td>
<td>41.67%</td>
<td>20</td>
</tr>
<tr>
<td>3</td>
<td>Neither likely nor unlikely</td>
<td>16.67%</td>
<td>8</td>
</tr>
<tr>
<td>4</td>
<td>Unlikely</td>
<td>8.33%</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>Extremely unlikely</td>
<td>2.08%</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>100%</td>
<td>48</td>
</tr>
</tbody>
</table>

13 - How often do you use a shopping list when grocery shopping?

<table>
<thead>
<tr>
<th>#</th>
<th>Answer</th>
<th>%</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Always</td>
<td>30.00%</td>
<td>60</td>
</tr>
<tr>
<td>2</td>
<td>Most of the time</td>
<td>36.00%</td>
<td>72</td>
</tr>
<tr>
<td>3</td>
<td>About half the time</td>
<td>10.00%</td>
<td>20</td>
</tr>
<tr>
<td>4</td>
<td>Sometimes</td>
<td>14.00%</td>
<td>28</td>
</tr>
<tr>
<td>5</td>
<td>Never</td>
<td>10.00%</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>100%</td>
<td>200</td>
</tr>
</tbody>
</table>

14 - What format do you view or carry your grocery list?

<table>
<thead>
<tr>
<th>#</th>
<th>Answer</th>
<th>%</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Smartphone or electronic device</td>
<td>21.11%</td>
<td>38</td>
</tr>
<tr>
<td>2</td>
<td>Paper</td>
<td>45.00%</td>
<td>81</td>
</tr>
<tr>
<td>#</td>
<td>Answer</td>
<td>%</td>
<td>Count</td>
</tr>
<tr>
<td>---</td>
<td>-------------------------------</td>
<td>-----</td>
<td>-------</td>
</tr>
<tr>
<td>1</td>
<td>Extremely Likely</td>
<td>27.00%</td>
<td>54</td>
</tr>
<tr>
<td>2</td>
<td>Likely</td>
<td>44.50%</td>
<td>89</td>
</tr>
<tr>
<td>3</td>
<td>Neither likely nor unlikely</td>
<td>14.00%</td>
<td>28</td>
</tr>
<tr>
<td>4</td>
<td>Unlikely</td>
<td>12.50%</td>
<td>25</td>
</tr>
<tr>
<td>5</td>
<td>Extremely unlikely</td>
<td>2.00%</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>100%</td>
<td>200</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>#</th>
<th>Answer</th>
<th>%</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Extremely likely</td>
<td>26.00%</td>
<td>52</td>
</tr>
<tr>
<td>2</td>
<td>Likely</td>
<td>39.00%</td>
<td>78</td>
</tr>
<tr>
<td>3</td>
<td>Neither likely nor unlikely</td>
<td>14.50%</td>
<td>29</td>
</tr>
<tr>
<td>4</td>
<td>Unlikely</td>
<td>17.50%</td>
<td>35</td>
</tr>
<tr>
<td>5</td>
<td>Extremely unlikely</td>
<td>3.00%</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>100%</td>
<td>200</td>
</tr>
</tbody>
</table>

17 - Why do you read the Ingredient List? (Check all that apply)
<table>
<thead>
<tr>
<th>#</th>
<th>Answer</th>
<th>%</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Avoid food due to allergy concerns (ex. Dairy, Gluten, tree nuts, etc.)</td>
<td>12.94%</td>
<td>37</td>
</tr>
<tr>
<td>2</td>
<td>Avoid food containing artificial color(s)</td>
<td>12.94%</td>
<td>37</td>
</tr>
<tr>
<td>3</td>
<td>Avoid food containing artificial ingredient(s)</td>
<td>19.23%</td>
<td>55</td>
</tr>
<tr>
<td>4</td>
<td>Avoid food containing processed ingredients</td>
<td>19.23%</td>
<td>55</td>
</tr>
<tr>
<td>5</td>
<td>Curious about what ingredients are in my food</td>
<td>26.22%</td>
<td>75</td>
</tr>
<tr>
<td>6</td>
<td>Other</td>
<td>9.44%</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>100%</td>
<td>286</td>
</tr>
</tbody>
</table>

Other - Text

Watch for sugar
Avoid added sugars
MSG and high fructose corn syrup
Vegan
Look at fat content
Vegetarian
I seldom buy processed foods
Health restrictions
All the above except #1
Look for sugars and carbs
Avoid food containing meat/animal byproducts, also containing unhealthy fats and oils
Calorie and weight loss concerns
Usually trying to avoid aspartame/Sucralose/high fructose corn syrup
Sugar content and fat
All of the above and I’d rather eat vegan.
Weight control
Avoid non-vegetarian items
Due to Crohn’s Disease, I need to avoid nuts and seeds that are not ground. High fiber and beans can become an issue if they are on the ingredient list as well as certain fruits and vegetables. Look for MSG to keep migraines low. Sodium content to increase blood pressure due to tachycardia issues.
Vegetarian searching for possible meat products
Identify primary ingredients
Prefer low sodium options
To confirm levels of protein and various vitamins
Vegan diet
Sugar content
Sodium
Sugar
Chemical additives

**18 - Do you find the format of the Ingredient List on prepackaged foods difficult or easy to interpret?**

<table>
<thead>
<tr>
<th>#</th>
<th>Answer</th>
<th>%</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Extremely easy</td>
<td>5.53%</td>
<td>11</td>
</tr>
<tr>
<td>2</td>
<td>Easy</td>
<td>38.69%</td>
<td>77</td>
</tr>
<tr>
<td>3</td>
<td>Neither easy nor difficult</td>
<td>33.17%</td>
<td>66</td>
</tr>
<tr>
<td>4</td>
<td>Difficult</td>
<td>20.10%</td>
<td>40</td>
</tr>
<tr>
<td>5</td>
<td>Extremely difficult</td>
<td>2.51%</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>100%</td>
<td>199</td>
</tr>
</tbody>
</table>

**19 - Why do you find the Ingredient List difficult to interpret? (Check all that apply)**

<table>
<thead>
<tr>
<th>#</th>
<th>Answer</th>
<th>%</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Type scale or style in Ingredient List</td>
<td>32.91%</td>
<td>26</td>
</tr>
<tr>
<td>2</td>
<td>Location of Ingredient List</td>
<td>18.99%</td>
<td>15</td>
</tr>
<tr>
<td>3</td>
<td>Do not understand the definition of many ingredient terms</td>
<td>45.57%</td>
<td>36</td>
</tr>
<tr>
<td>4</td>
<td>Other</td>
<td>2.53%</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>100%</td>
<td>79</td>
</tr>
</tbody>
</table>
How it’s laid out I wish allergy was first
Long list of commas separated terms is inherently hard to read - bullet points would be better (but wouldn’t fit, I suppose)

20 - Do you re-read the Nutrition Facts Label and/or Ingredients List when shopping for items you have previously purchased?

<table>
<thead>
<tr>
<th>#</th>
<th>Answer</th>
<th>%</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Always</td>
<td>3.90%</td>
<td>6</td>
</tr>
<tr>
<td>2</td>
<td>Most of the time</td>
<td>12.99%</td>
<td>20</td>
</tr>
<tr>
<td>3</td>
<td>About half the time</td>
<td>12.99%</td>
<td>20</td>
</tr>
<tr>
<td>4</td>
<td>Sometimes</td>
<td>56.49%</td>
<td>87</td>
</tr>
<tr>
<td>5</td>
<td>Never</td>
<td>13.64%</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>100%</td>
<td>154</td>
</tr>
</tbody>
</table>

21 - What thoughts or opinions do you associate with the term “artificial additive?”

Yuck!
I don’t want to buy it
I prefer not to purchase them.
Crap
Fake food
Chemicals
Chemicals
Not good
Negative association
Depends on the nature of the additive itself. It’s too vague
Synthetic or lab-produced food enhancement or preservative
<table>
<thead>
<tr>
<th>Word/Phrase</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not good</td>
<td></td>
</tr>
<tr>
<td>Bad</td>
<td></td>
</tr>
<tr>
<td>Gives more flavor to something</td>
<td></td>
</tr>
<tr>
<td>Negative or bad for you</td>
<td></td>
</tr>
<tr>
<td>Fake</td>
<td></td>
</tr>
<tr>
<td>I’d probably prefer not to get that item.</td>
<td></td>
</tr>
<tr>
<td>Assume it not good for you</td>
<td></td>
</tr>
<tr>
<td>Man made</td>
<td></td>
</tr>
<tr>
<td>Harmful chemicals</td>
<td></td>
</tr>
<tr>
<td>Fake</td>
<td></td>
</tr>
<tr>
<td>Preservatives or flavor enhancers... avoid them when possible.</td>
<td></td>
</tr>
<tr>
<td>If the list of ingredients is long, it doesn't surprise me to see it. I might still buy it</td>
<td></td>
</tr>
<tr>
<td>Something I don't want in my body</td>
<td></td>
</tr>
<tr>
<td>Coloring</td>
<td></td>
</tr>
<tr>
<td>Fake food or chemicals</td>
<td></td>
</tr>
<tr>
<td>Do not like additives; loss of nutrients</td>
<td></td>
</tr>
<tr>
<td>Generally negative, because it sounds like there is something being hidden into the food even if the additive is an artificial sugar or flavor.</td>
<td></td>
</tr>
<tr>
<td>For myself, I associate that with hidden allergen.</td>
<td></td>
</tr>
<tr>
<td>Slightly negative; I know I have a sensitivity to sulfites</td>
<td></td>
</tr>
<tr>
<td>I do not like products with artificial ingredients, not good for kids</td>
<td></td>
</tr>
<tr>
<td>I don’t know what is really in them</td>
<td></td>
</tr>
<tr>
<td>If I don’t know what it is I will not buy it</td>
<td></td>
</tr>
<tr>
<td>Negative</td>
<td></td>
</tr>
<tr>
<td>Yikes. Sounds like chemicals. Unnatural.</td>
<td></td>
</tr>
<tr>
<td>Chemical, harmful, unknown</td>
<td></td>
</tr>
<tr>
<td>Highly chemically altered</td>
<td></td>
</tr>
<tr>
<td>Fake/unhealthy ingredients</td>
<td></td>
</tr>
<tr>
<td>Not natural</td>
<td></td>
</tr>
<tr>
<td>That the foods have preservatives, but mostly I connect it with added flavor. Not a bad thing necessarily.</td>
<td></td>
</tr>
</tbody>
</table>
Vague descriptor.

Cancer

Chemicals

Not something I want to consume or give to my family

Concern. need to know more

Poison

Genetically engineered ingredient

Not derived from a natural source, synthetic

Avoid

Non-natural man made substance added

Chemical, not healthy

Just what it says

Something added to give longer shelf life

Lord knows what it is. The FDA is allowing these corporations to kill us with labels like this.

Bad sugars

I usually think/assume “fake or chemical” additives

Poison

Not healthy and/or natural

Something that is not good for you

Negative thoughts and opinions about the words artificial and additive

That it is something that does not to be there

Food coloring

I would like to know what it is and why it is added. It makes me uncomfortable about the product.

Gross

Indifferent

Chemicals; might not be present in homemade version of the same product; might not be healthful

Extra chemicals in our food that may or may not be good for us.

That the additive has some kind of chemical added to it. That it is fake.

I try to avoid.

Try to avoid using it
<table>
<thead>
<tr>
<th>Should be avoided</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not the real sugar, flour, etc.</td>
</tr>
<tr>
<td>Not ideal, but I understand it comes with the territory of prepackaged/convenience food</td>
</tr>
<tr>
<td>Fake stuff</td>
</tr>
<tr>
<td>Fake. Not healthy or natural.</td>
</tr>
<tr>
<td>Chemical</td>
</tr>
<tr>
<td>Sounds negative or unhealthy.</td>
</tr>
<tr>
<td>Un-natural ingredient added</td>
</tr>
<tr>
<td>My first thought is unhealthy and processed foods.</td>
</tr>
<tr>
<td>Fake, unnatural</td>
</tr>
<tr>
<td>Not good for you</td>
</tr>
<tr>
<td>Unhealthy</td>
</tr>
<tr>
<td>Chemical</td>
</tr>
<tr>
<td>I associate it with being unhealthy, and therefore avoid it due to autoimmune issues.</td>
</tr>
<tr>
<td>Cancer, not real food</td>
</tr>
<tr>
<td>Common</td>
</tr>
<tr>
<td>Always avoid</td>
</tr>
<tr>
<td>Prefer not to have them.</td>
</tr>
<tr>
<td>Not natural or substitutional</td>
</tr>
<tr>
<td>Not sure what that means</td>
</tr>
<tr>
<td>Negative, unhealthy, chemical, created in a lab, not natural, creepy, you don’t really know what you are eating</td>
</tr>
<tr>
<td>Fake, unhealthy</td>
</tr>
<tr>
<td>It’s probably a flavoring. My initial thoughts are negative but I try to realize lots of foods have these in them.</td>
</tr>
<tr>
<td>Don't buy it!</td>
</tr>
<tr>
<td>Non-natural, not healthy, artificial sugar</td>
</tr>
<tr>
<td>It’s not the best. I call it plaster food</td>
</tr>
<tr>
<td>Na</td>
</tr>
<tr>
<td>Prefer natural</td>
</tr>
<tr>
<td>None</td>
</tr>
<tr>
<td>----------------------</td>
</tr>
<tr>
<td>Animal by-product, GMOs, chemicals</td>
</tr>
<tr>
<td>Not good</td>
</tr>
<tr>
<td>Don’t want to use. Hard to find items without it!</td>
</tr>
<tr>
<td>Nothing good</td>
</tr>
<tr>
<td>It is somewhat concerning.</td>
</tr>
<tr>
<td>Colors, sweeteners, preservatives</td>
</tr>
<tr>
<td>Sugar, MSG</td>
</tr>
<tr>
<td>I assume it is generally a preservative or artificial flavor or color.</td>
</tr>
<tr>
<td>No added benefit that would make it better for you</td>
</tr>
<tr>
<td>No good</td>
</tr>
<tr>
<td>It’s not natural and therefore not as healthy</td>
</tr>
<tr>
<td>Unhealthy</td>
</tr>
<tr>
<td>Fake</td>
</tr>
<tr>
<td>Unhealthy chemical. Negative thoughts</td>
</tr>
<tr>
<td>Allergies, bad taste, danger</td>
</tr>
<tr>
<td>Negative</td>
</tr>
</tbody>
</table>
Chemicals designed to flavor, fortify, or preserve the product

I associate bad tasting, leaving a feeling of oil in my mouth, and not wanting to purchase it.

Maybe bad for you

Not preferred, but might be OK

Fake - not good for you

Something fake

My only thought is that it is a very vague non-descriptive term.

Not a natural ingredient. For example, a chemical preservative

Harmful

Man-made, not health, avoid, processed

Not natural/organic

Maybe not the best for you

Negative, avoid at all costs

I work for a food manufacturer. I am not as alarmed as most people, so I don’t completely avoid them.

I generally think about artificial sweeteners

Wonder additive purpose

This is a chemical I don’t want to feed my kids

Just that there are probably natural alternatives but those products are usually more expensive

It covers all manner of sins. That it’s used instead of a more specific term for a reason, and probably not a good one.

Bad stuff, will probably kill me or my family but hard to avoid -- realistically.

Unhealthy

Something fake that’s not needed

It’s a fairly neutral term. It could be innocuous or not.

Potentially harmful, cheap

Indifferent unless it’s Splenda or aspartame

Negative

Hives

Usually just color

It depends what is being purchased. Wine has sulfates (preservatives), yet no labeling.
22 - What thoughts or opinions do you associate with the term “processed ingredient?”

Yuck! Unhealthy!

I don’t want to buy it
I prefer not to purchase.

They could be skipped

Stripped down food

All the good stuff is reduced or removed!

Chemicals

Bad for you

Negative association

Also, very vague, not helpful.

Should try to avoid, but there’s worse things out there

Not good

Bad

more healthy food that is packaged?

Bad for you. Unnatural

Fake

I feel slightly uncomfortable but would still get the item if I need it or it interests me.

Overly manipulated so as to not be healthy

Chemicals

Not real

Not good

Ingredients to avoid in processed food... like nitrates, sulfites, BHA and

If the list of ingredients is long, it doesn’t surprise me to see it. I might still buy it

Something that makes me dubious on how it was purchased

Unsure

Try to avoid processed foods

Generally indifferent. Processing doesn’t necessarily have any positive or negative connotations to me since many foodstuffs require some level of processing to become what they are.

This doesn’t bother me.

Neutral - have no opinion

I try to avoid processed foods ... too much fat and chemicals ... I feel like it changes kid’s tastes to prefer that type of food

I don’t know what is really in them
I don’t like and must of the time I will not buy it

**Negative**

Not natural state. Anything from cooked to chemically or genetically modified.

Chemical, unnatural, unhealthy

Diminished nutrient level

Fake/unhealthy

**Bad for you**

That the food has been altered/combined with other things. Not a bad thing necessarily, my first thought was peanut butter is processed and I eat it all the time.

Poor nutritional value, potential carcinogen.

**Obesity**

Removed healthy stuff

Not something I want to consume or give to my family

Same as above- concern. Need to know more

Added sugar, fat, salt

**Unhealthy**

May be stripped of nutrition, glycemic index too high, stripped of natural fiber

**Avoid**

Not real/ partially real. Not a natural ingredient that was made in food lab

Not healthy

Just what it says

That this is not food but something created in a factory.

**Not good for you**

I usually think/assume high sodium or chemical additives

**Poison**

Mass produced/pre-packages

**Not wholesome**

I try to avoid anything that labels itself as processes

**It is probably not healthy**

**Unnatural**
Anything that is not fresh has been processed in some way. I would like more information.

GMO
Something added that is not in its natural state
Less nutritious
Ingredients that are man-made.
That additives have been added to the foods to give it a longer life in the grocery stores.
Try to avoid. Processed usually means less healthy.
I don’t think in terms of processed ingredients, more processed foods, try to limit amount used
Should be avoided
That the ingredients have been cooked
Not ideal, but I understand it comes with the territory of prepackaged/convenience food
Not natural
Not healthy or natural.
Easier than raw
Sounds negative or unhealthy.
Chemical ingredient
Ingredients that do not have any nutritional value.
Science
Probably not good for you
Unhealthy,
Chemical
I associate it with being unhealthy, and therefore avoid it due to autoimmune issues.
Not real food, poor quality
Common
Try to avoid
Prefer not to have them
Cooked or prepared. Not in raw or original state
Not natural
Negative, unhealthy, fattening, clogged arteries and death, Monsanto, evil, not as good tasting
Less healthy
It’s a meaningless term. Everything is ‘processed’ in some fashion.
Don’t buy it!
Junk food, loaded with preservatives
Junk. Eternal shelf life
Na
Everything is processed to some extent.
None
Negative, but it probably wouldn’t stop me from buying
Factories, artificial flavors
Not good
Sounds inedible and also unnecessary
Question how it was processed. Can’t really find an answer to it either. Is it good or bad
Change from the original in a generally harmful way.
None
Not descriptive enough
Also, somewhat concerning.
They’re not good for you, you should try to avoid them
Made in a plant and not necessarily food grade
Too much added sugar, salt & other additives
MSG
Read deeper and look online
I assume it is a natural ingredient that has been changed (milled, rendered, processed, etc.) for this use.
Try to keep to a minimum
No opinion
Generally, I worry about no nutritional value or overly-preserved
Not good
I don’t really have an opinion of the term. It sounds like something that would happen in the course of creating and the packing of foods.
Too much processed food is unhealthy
Unnatural
Modified in some way
Not healthy
Negative / unhealthy
Confused
Negative, don't like to buy overly processed things
Mush, unhealthy, not tasty
GMO
Anything that is far removed from the original food source
Anything that is not find in the product isle.
Has additives
Not good, should I be eating this?
Less than optimal for good health
Something unnatural
Also, that its vague term. I am no opinions about it though.
Typically, a byproduct or filler ingredient
Harmful
Same as artificial additives
Why god
Maybe not the best for you
Negative, avoid if it’s on a list I know can cause a negative effect on me or my husband due to sensitivities
I work for a food manufacturer. I am not as alarmed as most people, so I don't completely avoid them.
My first thought is high in sodium
Wonder its purpose
This isn’t a ‘whole food’
They may not contain the same nutritional value as less processed ingredients
Processed how? And what does that mean for the actual food? Nutrition? Safety? What did processing do?
Chemicals, coloring, preservatives
Unhealthy
Something unnatural
Same as above, but a little more concerning

Possibly detrimental to health

Ok

Negative

Loss of nutrition

Not much

I think it sounds bad, but what is not “processed” if dealing with mass produced foods. Large food processing facilities also have more regulations than something made at home.

Don’t like it

Less healthy option, cheap/easy-to-make for the food company

Processed sounds so unhealthy to me

Nothing

Not fresh

Something that is far away from the ingredients natural state

Added for flavor, or preserving of food.

Odd phrasing. same feelings though as “artificial additive.” It has a negative connotation of being “not natural”

It raises my interest, but I think I’m immune to it because it’s so common. I’m not scared away by it.

I do not necessary associate anything with it

Man-made not natural

Homogenized

It is changed

Bad for you

Processed ingredients have a negative connotation for me

Anything not from nature is processed from Sriracha to any grain. I feel like this is incomplete information used to scare consumers.

It has a negative connotation to me.

Again, something unnatural

Not Natural or manipulated

Unhealthy

High sodium

Unnatural, fake, unhealthy,
This term has a loose interpretation because all of our food is “processed” unless we harvested it ourselves from a wild source. Even then, most things need to be “processed” to a certain degree.

23 - Is avoiding “artificial additives” and/or “processed ingredients” important to you?

<table>
<thead>
<tr>
<th>#</th>
<th>Answer</th>
<th>%</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Extremely important</td>
<td>17.44%</td>
<td>34</td>
</tr>
<tr>
<td>2</td>
<td>Very important</td>
<td>23.08%</td>
<td>45</td>
</tr>
<tr>
<td>3</td>
<td>Moderately important</td>
<td>33.33%</td>
<td>65</td>
</tr>
<tr>
<td>4</td>
<td>Slightly important</td>
<td>18.97%</td>
<td>37</td>
</tr>
<tr>
<td>5</td>
<td>Not at all important</td>
<td>7.18%</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>100%</td>
<td>195</td>
</tr>
</tbody>
</table>

24 - Do you think the standard labeling, such as the Nutrition Label or the Ingredient List is important?

<table>
<thead>
<tr>
<th>#</th>
<th>Answer</th>
<th>%</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Extremely important</td>
<td>54.40%</td>
<td>105</td>
</tr>
<tr>
<td>2</td>
<td>Very important</td>
<td>36.27%</td>
<td>70</td>
</tr>
<tr>
<td>3</td>
<td>Moderately important</td>
<td>6.22%</td>
<td>12</td>
</tr>
<tr>
<td>4</td>
<td>Slightly important</td>
<td>2.59%</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>Not at all important</td>
<td>0.52%</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>100%</td>
<td>193</td>
</tr>
</tbody>
</table>

25 - If a food contains artificial additives and/or processed ingredients, to what extent would you like to see this information clearly displayed on the label?

<table>
<thead>
<tr>
<th>#</th>
<th>Answer</th>
<th>%</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Like a great deal</td>
<td>54.40%</td>
<td>105</td>
</tr>
</tbody>
</table>
Like | 33.68% | 65
Neither like nor dislike | 11.92% | 23
Dislike | 0.00% | 0
Dislike a great deal | 0.00% | 0
Total | 100% | 193

26 - Would standardizing the display of “artificial additives” and/or “processed ingredients” on food labels be helpful when making your grocery purchasing decisions?

<table>
<thead>
<tr>
<th>#</th>
<th>Answer</th>
<th>%</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Extremely helpful</td>
<td>48.81%</td>
<td>82</td>
</tr>
<tr>
<td>2</td>
<td>Helpful</td>
<td>42.86%</td>
<td>72</td>
</tr>
<tr>
<td>3</td>
<td>Neither helpful or unhelpful</td>
<td>7.74%</td>
<td>13</td>
</tr>
<tr>
<td>4</td>
<td>Unhelpful</td>
<td>0.00%</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>Extremely unhelpful</td>
<td>0.60%</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>100%</td>
<td>168</td>
</tr>
</tbody>
</table>

27 - What type of front of package labeling do you look at when shopping for groceries? (Click all that apply)

<table>
<thead>
<tr>
<th>#</th>
<th>Answer</th>
<th>%</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Brand name and/or logo</td>
<td>22.36%</td>
<td>123</td>
</tr>
<tr>
<td>2</td>
<td>Product Name</td>
<td>26.73%</td>
<td>147</td>
</tr>
<tr>
<td>3</td>
<td>Food Claim (ex. Low fat, Reduced sugar, etc.)</td>
<td>17.09%</td>
<td>94</td>
</tr>
<tr>
<td>4</td>
<td>Imagery (ex. Kids characters, image of product, etc.)</td>
<td>5.64%</td>
<td>31</td>
</tr>
<tr>
<td>5</td>
<td>Symbols or Logos (ex. Certification logos, health organization logos, etc.)</td>
<td>10.91%</td>
<td>60</td>
</tr>
<tr>
<td>6</td>
<td>Front of Package Nutritional Labeling</td>
<td>13.82%</td>
<td>76</td>
</tr>
<tr>
<td>7</td>
<td>Other</td>
<td>3.45%</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>100%</td>
<td>550</td>
</tr>
</tbody>
</table>
Can I trust the company?

Generic brand

Price

Is it completely vegetarian or not

Organic

Product details

I shop around the edges and try not to buy anything that comes in a box, bag, bottle, can, or jar.

Non GMO, organic

Less marketing more honest information

MSG

Don't trust the front of package claims

Organic, GMO FREE especially, no animals were harmed, etc.

Wegmans labeled

Sell/Use By dates

The package size compared to the price.

“Free from” labeling

Usually by fresh ingredients

No added sugar

I look at labels if I am not familiar with the product or trying to decide between 2 products.

28 - How familiar are you with the Facts Up Front labeling system (example above) on prepackaged grocery items? 


<table>
<thead>
<tr>
<th>#</th>
<th>Answer</th>
<th>%</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
<td>Extremely familiar</td>
<td>27.75%</td>
<td>53</td>
</tr>
<tr>
<td>20</td>
<td>Familiar</td>
<td>54.45%</td>
<td>104</td>
</tr>
<tr>
<td>22</td>
<td>Not Familiar</td>
<td>17.28%</td>
<td>33</td>
</tr>
<tr>
<td>23</td>
<td>Not sure</td>
<td>0.52%</td>
<td>1</td>
</tr>
</tbody>
</table>
29 - Do find the Facts Up Front labeling system is useful when making purchasing decisions?

<table>
<thead>
<tr>
<th>#</th>
<th>Answer</th>
<th>%</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Extremely useful</td>
<td>29.30%</td>
<td>46</td>
</tr>
<tr>
<td>2</td>
<td>Useful</td>
<td>54.78%</td>
<td>86</td>
</tr>
<tr>
<td>3</td>
<td>Neither useful nor useless</td>
<td>14.01%</td>
<td>22</td>
</tr>
<tr>
<td>4</td>
<td>Useless</td>
<td>1.91%</td>
<td>3</td>
</tr>
<tr>
<td>5</td>
<td>Extremely useless</td>
<td>0.00%</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
<td><strong>157</strong></td>
</tr>
</tbody>
</table>

30 - Please feel contribute any thoughts or concerns you might have in regards to artificial additive and processed ingredient labeling.

I think if it had it listed on the front and back it might be more helpful

They are not always clear

NA

Need to get them out of our foods.

I’d prefer if the box for nutrition or the front package says unnatural or has artificial flavor or additives so I can make smarter purchasing choices for a healthier lifestyle.

should be larger text for older people to read easily

label it

Too much of it occurring in foods, “good” foods are more expensive and should change and not enough ingredient transparency.

They’re vague terms. I hope this project isn’t going to argue for more committee-decided phrasing such as “artificial additive.” It’s like “modified food starch,” which doesn’t tell you if it’s wheat or corn. Get them to be specific -- and words like “artificial” and “processed” are euphemisms

I’d rather more specificity than the general term of “processed”

In regards to the debase of GMOs, artificial additives and processed ingredients being found in foods, I’m generally not concerned about them. Foods have been processed, modified, and have had artificial ingredients added for a long while and there hasn’t been enough impartial research done to definitively point either way. There are some artificial sweeteners that I avoid due to health side effects, but beyond those I don't try to steer away from processed, modified and artificial foods
The facts label would be more useful to me if they had a fraction on it in regards to food allergens. For example, 1/8 ALLERGEN which would mean this product contains 1 of the major 8 allergens.

Labels with “grams of sugar” is SO misleading. Most don’t know that 4gm = 1 tsp. Any chance of having that changed to “teaspoons of sugar” per serving?!

Sometimes the labeling is too small to read

Don’t like them. will not buy the product

Standardization would be helpful

Any processed food that attempts to advertise itself as healthy usually results in me trusting it less.

Hoping the print will remain large enough to read by all ages.

Having these elements identified more prominently would be helpful. also...larger print is helpful

I would like a more descriptive ingredient list without the big scientific words or terminology.

I am less concerned about artificial ingredients than processed ingredients.

I hardly buy any processed food because it all contains artificial and/or processed ingredients

Food industry needs to get away from additives, GMO and other unhealthy ingredients. Ultimately, I believe these additives can attribute to health issues

I think what would be even more useful is if they tell us exactly what the artificial additive, processed ingredient, and so called natural ingredients are. I think it is horrible that you can label beaver anal glands as a natural ingredient. I also find it horrible that they use these scientific names for ingredients instead of stating in layman terms exactly what’s included.

It is too small to read. It should be very easy to see.

It would certainly be helpful to see this information clearly displayed on the front of packaging, but as it stands, I don't find it terribly difficult to find this information quickly on my own.

I think it will become just clutter on the front of the pkg after a time if it is implemented

Hard to compare to what is healthy vs unhealthy

I am glad that more importance is being put onto giving consumers more information about what is being put into the food that is being offered for sale and that the manufacturers seem to be starting to try to make their products healthier.

I’m glad they are on the labels it helps to make up my mind whether to buy or not. Especially when you have someone in your household that is having health issues.

I don’t think labeling is always accurate and often misleading.

I think having a standardized nutrient and ingredient label system would be a benefit for the consumer...particularly families with growing children.

I would love to see net carbs on front of stuff

I tend to try and stay away from processed ingredients. However, I have a fast-paced lifestyle, so generally I pick up some frozen single pasta meals and will stick to certain brands. In hindsight, I stick to certain brands because of their front packaging. Some packaging designs turn me off, like boxed meals. I like the steam fresh pasta meals because it makes me feel those are healthier than the alternatives.

Should this read Please feel “free to” contribute...? I feel it’s vital to inform consumers or artificial additives and processed ingredients. It’s our choice to consume or avoid it, but the info should be
presented for both the consumer and manufacturer's protections.

Should be predominant

Generally, I think it is important for packaging to better inform buyers when there are artificial and harmful ingredients. Apathetic shoppers don't take the time to read through the ingredients details, which just perpetuates the health crises we are seeing in this country.

I don’t know what these terms actually mean. They seem to have become politicized.

I think if I don't read that these are in there it bothers me less than if I flipped the package and found them but I'm not sure how often I chose to read the ingredient list for it to matter.

Some of this information can be misleading in that it skews the information to try to sell the product.

It should be highly visible and easy to read.

My concern is that the big companies will find a way to skirt around any regulations created.

There are too many in our food. If I need a dictionary to help me pronounce the ingredient, I don't want to eat it.

Easy to understand what the terms stands for

None

I think it’s important that consumers are informed about what they purchase, and anything to facilitate that is important. This should not be driven by marketing or the manufacturers.

It would be helpful if ingredients were broken down by type and amount in a format that is easier to read.

I thought these were still part of the ingredients list on the side of the box. Unless you mean where it says “2% or less: artificial ingredients“ and they're not required to list them.

More labeling can't hurt, as long as it doesn't add confusion.

Clear and simple labeling is helpful.

I would want it to be verified by third parties, so companies can’t simply rename their ingredient and thereby avoid using the label.

None.

I assume that most products contain artificial additives and processed ingredients unless labelled otherwise.

I feel a lot of people buy organic because the ingredients are understandable, yet not clear, on other things. I appreciate when helpers are added - like when an ingredient is followed with ‘emulsifier’ or ‘to prevent caking.’ I feel better if I understand why it’s in my food. I also hate when something feels snuck in - if I google it later and see it was something gross that they gave a scientific name to in order to hide it.

I hate that I cannot differentiate them or what they are doing in the product. Also, I've never heard of most of them so it is hard to make evaluations. Everything is so “disguised” these days that I feel powerless, often, as a consumer.

Which ones? Define artificial? And how long have we been using them in food? Why are people all of a sudden shocked by this discovery?

It needs to be easily found and in language and font size that is easy to read.

I know they're not great, but I generally eat a fresh diet, so if I eat something that is artificial or
processed every once and awhile, it's not going to hurt me.

Dog food ads stress more about food ingredients then ads for foods that we feed humans - That's wrong

Probably needs to be clearer. Just from anecdotal observation, it seems no one really pays much attention to the product let alone the nutrition info.

Sometimes feel the information is not 100% accurate and honest.

I would like it to be clearly labeled on the package so I could avoid items that contain these.

It's difficult to pronounce/understand ingredients. If it's too many, I usually pass on the purchase.

Most food labelling is very misleading. Even the name of the food can be deceptive. When I read a package's labels, I rely on the ingredients list and the nutrition label. I realize that nutrition labels are not always completely accurate... riper fruit will have a higher sugar content, etc. Therefore, I think the ingredients list is a bit more meaningful to me.
Appendix C

Focus Group Notes and Summary of Responses
Focus Group: 3 men, 3 women (1 married couple: 1 man and 1 woman)
Length: 57:42
Day: Monday, October 30, 2017

Shopping Habits:

1:55 Are any of you the primary grocery shopper in your household or do you share this responsibility with another member of your household? By primary shopper I mean make the decisions about what you are purchasing before or after you arrive at the grocery store and carry out most of the in-store shopping.

- 3/6 primary shoppers (3 women)

2:13 Does anyone grocery shop with the other person in your household? That is, visit the grocery store with another person(s)?

- 5/6 (2 men, 3 women)

If so who do you go to the grocery store with?

- Children
- Husband/Wife (married couple)
- Husband and Kids
- Wife and Kids

2:42 Do you both make decisions about what to purchase when shopping with that person?

- No, just tell husband what to pick up (primary shopper).
- Limited discussion, 90% of the stuff the wife makes decision, but here and there he does.
- Discussion, husband looks at labels and says he does not want something (husband and wife- wife is primary shopper).
- Do you want this or this? Decisions based off items already chosen (primary shopper).
When shops with wife (he is not the primary shopper) most of the conversation focuses around canned items, and boxed items. Look at ingredients and nutrients and often find that those are not the ones they want.

4:26 What age children?
- 4 ½, 2 ½ and 0
- 3
- 9 and 6
- 10

4:47 Are you distracted when you are with those children?
- Laughter
- ¾ said yes it was distracting

5:05 Tell me how that affects your shopping trip?
- Menu plan before they go, have the 4 ½ old help out, normally know what she is getting so it does not affect end purchasing.
- When going with his son and have a list, the child (10) finds the colorful items at his height. Most of these items have nutrients that they are trying to avoid but the items end up in the cart.
- Agree with the previous parent; if the child (3) has a meltdown then they grab whatever they can to facilitate leaving and there is less deliberation the store.
- Good to have a pattern, and habits (children ages 6 and 9) and visit the same store. If they don’t follow the pattern they miss foods. They start with produce and allow the children to pick what they want, by the back of the store the children have lost interest in asking for items.
Packaging Labels:

8:20 Does anyone take the time to read these labels while grocery shopping to help make purchasing decisions? Show a label here to remind the participants of the sections.

- All six nodded yes.

8:45 What part of the label are you focusing on?

- Ingredients label (everyone else nodded).
- Ingredients first and then look at the nutrients breakdown.
- Ingredients for allergies, but for certain foods, he will look at the Nutrition label for sugar and salt, ex. processed soups.
- Top-down approach: portion control, sodium, cholesterol, sugar, the ingredients, if it is too long of a list or if he can’t pronounce the ingredients he will stay away from it.

10:19 What was the most important thing you look for on the Ingredient List?

- Allergens, Sugar, Size of Ingredients List, know what ingredients are.

11:20 How do you define what an artificial ingredient is?

- Designer sugars or sweeteners, except for stevia or cane sugars.
- High Fructose Corn Syrup is derived from natural ingredients, but I would call that artificial.
- Outside of what I have in my cupboard to cook with.
- Stuff that has been stuck in food to be made cheaper or last longer, stuff put in food not more me but for the company.

13:52 On products that you buy often, do you reread the ingredients when purchasing from week to week?

- Not usually, if I use it and know what is in it I won’t reread, if it is something new then I will read them.
- No, unless there are life changes (cited the example of his son transitioning from baby food).
• If the packaging changes, if it is something that we buy but not regularly I will reread.

• Once we buy something, we don’t reread it unless the label changes (same great taste but lower fat).

• I reread ketchup.

• If the packaging looks like the same product that I usually buy, but it is not it (fancy ketchup or diet).

• Where is it made, I look for that, concerned if it is made in China.

• Another person looks for that as well (where is was made).

• Stopped buying canned vegetables for that reason.

17:45  **How easy is it to read and/or understand the Ingredient List on food?**

• Hard to see, hard to pronounce or understand.

• Terms: you won’t see sugar, you see a different form of the word, same with salt. They do that to trick people into thinking it is not in there, by in fact there is, but it is called something like sucralose. They are becoming wise to consumers to not wanting sugar and trying to be tricky in how they do that.

• Worded in a way that sounds positive, like enriched flour.

• Say something in parenthesis: that is what the item is really made of.

• Like a piece of whole wheat bread has more sugar than a Snickers bar.

19:56  **I have a few Ingredient Lists from prepackaged food here. Show package labels of food products with product name and imagery covered. Can you tell me what you think about these labels?**

• A word you don’t know and then parentheses there are other names.

• Ingredients in all caps, wall of gray- hard to read.

• Some ingredient, is an anti-caking agent, feels like it is OK because it is just for anti-caking.

• TBHQ for freshness (sarcastic).

• Organic in front of every description in the list.
What do you think about then? If it says Organic in front of things would that make you likely to purchase it, is it OK, not ok, how would you feel about it?

- At first thought it was OK, but the more he read about it the more skeptical he become. So when ‘organic’ is added now, I become more skeptical, look further before choosing. They try to cater to our wants and desires to get us to buy it and not to our health choices.
- Just because it is organic doesn’t mean it is better for you, candy and snacks, it may not be unwanted added ingredients, but still can be bad for you.
- Metric system (grams).
- Listed that it was manufactured in a facility that has eggs, wheat. Saying it in the box is helpful (agreed by other members of the groups, nodding and verbally).

That is a plus, so for an allergic person that is something that is good.

- A lot of frozen vegetables do not have it.
- Wonderful for people with allergies.
- Seems to be a newer thing, I am seeing it more and more at the bottom of the list.

So that is positive. What would you change about the ingredients label, what would you want manufacturers to change?

Member of the group: “What’s in it or how it is presented?” Me: “Either.”

- In it? Like Natural, I don’t know...Less ingredients. I cook a lot, and I recognize what I cook and look at an ingredients list of the same item and think ‘holy cow why is all of this in here?’ but I also am not packaging it and selling it to millions of people, and it has to sit on the shelf. It would be nice not to add additives, but I recognize that what I cook for my family won’t make it out to be distributed.
- It would be nice, and they do a little, like for freshness, to indicate here is the stuff that is in the food and here is the stuff that we fiddled with the food to get it to the shelf. I know they would not like to do that, but it would be nice to divide it out so I can see it, what’s there to keep it on the shelf.
- What’s GMO and what’s not GMO.
● An incomplete reading list, the last ingredient says artificial flavor what does that mean? Granted it is the last item, which usually means it is the smallest amount, but still it is not a complete list to tell me what is used to make the artificial flavor.

● See here I see that as ‘natural flavor’ what does that mean? What goes into the natural flavor.

● I will tell you for allergies, like gluten, all of those and spices could mean it has wheat in it. It is not clear as to what exactly it is. I would like to find out what natural or artificial or seasoning or spices are.

26:47 Member of the Group: “So you look for packaging that says “Gluten-Free?”

● It is hard because a lot of things are naturally gluten-free, but the processing of them makes it not gluten-free. Do we take a gamble?

● Talk about oats, contaminated with wheat in processing.

● With cereals, a General Mills product and I found trisodium phosphate as an ingredient, that is the same stuff I use to wash the side of my house, a cleaning agent in my cereal, granted it is not the same percentage, but still, I don’t want that in my child’s diet.

28:21 Does anyone look at any other part of the package other than the Nutrition Label or Ingredient List to make purchasing decisions when grocery shopping? Can you tell me why? Show an example of packaging.

● I picked the right box of cereal that has trisodium phosphate in it.

● That was on Facebook, about this cereal, check it because you don’t want to be giving your kids this.

● “No High Fructose Corn Syrup,” “No Artificial Sources,” “No Artificial Flavors,” and you think “oh that would be kind of good” but then you look at the ingredients.

29:25 So is that something that you are interested in seeing if it says “no something” does it make your decision easier, does it make it harder?
● Sometimes it will sometimes make me look at it.
● This says no preservatives, (‘lil entree) which is just adorable, but preservative are in there, so something does not go bad, how do they define those terms, what counts as low fat, what counts as organic, it is not for the purposes for us to understand it, it is for the purposes of observation, keeping us from understanding what they are actually saying.
● This one has naturally AND artificially flavored.
● I would put that back.

31:00 So the label on the front would indicate to you to not pick it up (Referring to the Natural and Artificially Flavored labeling on Special K cereal)
  ● Yes, right. Kind of like the chocolate syrup, (Hershey’s) Simple 5, only five ingredients. When we buy ice cream I look to find the one with the least amount of ingredients versus one that has a laundry list “this” long; I don’t need all of those ingredients in my ice cream.
  ● This one I like: It looks like it should be good, because it has fruit on it, and it's “Sunny D” but it says real big “100% Vitamin C” but if you look on the back it contains 5% juice, and it’s all sugar and salt, pho healthy stuff, really skeptical.
  ● The more I see “no this, no that” it makes me more skeptical, I listened to this thing (from a doctor) about the more advertising that on the front, the more you should be skeptical, and I found that to be true. I mean look at this (Cinnamon Toast Crunch) it says no this and that, but come on? It’s Cinnamon Toast Crunch and covered in sugar! You are giving your child sugar.

32:43 So there is no high fructose corn syrup, but there is still sugar?
  ● Yes, I mean sugar is potentially better than high fructose corn syrup, but it is the amount of sugar, and geared towards children, But I will say that because my husband has Celiac disease, what I look for is gluten, if it says it right on the front, in order to have the gluten-free labeling on the front it has to be certified, and some association verified, we do look for that. The USDA Organic is nice to see,
but not “I’m done” it is positive, but you still have ingredients that I don’t know what they are.

- (Spaghetti sauce) It says six places it is organic, and it’s Aldi, so it’s good. It says a full serving of veggies per ½ cup. It sounds good; there is nothing deeper than that. But I don’t see what possible benefit it is… it is called Simply Nature, “a simple choice” well, geez if it is a simple choice.
- (Rainbow color Goldfish) There is Watermelon juice in here, which is funny, (someone else says- that is because of the coloring, they took out the red dye in it) I guess I assume that most of the ingredients are in here because of the color (reads more coloring ingredients).

35:12 Does that concern you, or how do you feel better about that for coloring.

- I never buy the colored ones; I never knew that… I don’t pay attention to the colored ones.
- They have changed it; they got rid of the dyes which are a good thing in my book.
- When Aldi changed their packaging (Simply Nature), I looked at all the ingredients, read “free from over 125 artificial ingredients” which is a positive but I don’t necessarily take their word for it, but it is positive.
- That’s like High Fructose Corn Syrup is technically a natural thing, but they use it in such a way that takes all the benefits out.

Artificial Additives:

So now we are going to talk about artificial additives, which we have already touched a bit on. There is public concern about artificial additive being used in our food. I am defining artificial additives from The Miscellaneous Food Additives Regulations 1995 which states (found here: http://www.legislation.gov.uk/uksi/1995/3187/made):

“…any substance not normally consumed as a food in itself and not normally used as a characteristic ingredient of food, whether or not it has nutritive value, the intentional addition of which to food for a technological purpose in the manufacture, processing, preparation, treatment, packaging, transport or storage…”
Is anyone concerned about artificial additives in your food?
  * Yes, nods, agreement.

When you are shopping, do you try to avoid these artificial additives when purchasing groceries?
  * Within reason. If presented with two options I would try to pick the lesser. But, clearly consume less than healthy option (pointing to a cup of McDonald’s soda pop) I try to minimize, not fully.
  * We are about the same way; we try about 80/20 rule, we would love to do it 100%. It’s difficult because it is in lots of food. We try to avoid it; we try to eat whole foods, we can’t be perfect. It’s in candies, snacks.

Can you tell me which(some) of the artificial additives you try to avoid?
  * Artificial Sweeteners.
  * We don’t either.
  * TBHQ, we avoid it. But treat ourselves because it is in Reese’s Cups, which are our favorite.

So it’s safe to say you will make an exception
  * Yeah.

If you don’t consider an ingredient artificial, how would you classify it?
  * Organic maybe?
  * Natural.
  * Necessary.

Do you carry a smartphone when grocery shopping?
  * All yes.
Thinking about your shopping experience at grocery stores, would you use a smartphone to look at additional information in the store? Look up definitions or scan a QR code?

- Yes.

What do you look up?

- Weight Watchers. You can scan the barcode pull up points, but often just by looking at the calories or fat and sugar, you can guess it’s going to be bad. Fresh fruits and veggies are better.

Does anyone else use your smartphone to scan or look up anything when shopping?

- I want to look up one of the words on the packaging.

Would you do that in the store?

- Yeah.
- If you get service.
- I normally do it at home, not in the store because I have 3 children. I might take a quick look.

Does anyone put their list on their phone, use their phone for their list

- 3/6 said yes (1 woman, 2 men, 1 woman did not answer, it looks like she nodded but not definitive).
- I don’t know that this counts, but I don’t look things up, but I will ask my wife questions (txt).

Does anyone else do that?

- Yes (man), I take pictures and send pictures.
Artificial Additive Labeling

As part of this investigation, I am exploring the possibility of standard labeling of artificial additive ingredients on prepackaged foods. I would like to spend the rest of our time here discussing this topic.

44:09 Would you like to see this type of labeling on prepackaged food? If so why?
   ● All nodded yes or said yes.
   ● Anything to make it easier.

44:24 You said “because it would make it easier” is their reason why?
   ● If you can see on the front that it had that TBHQ, you could make a decision easier.

44:53 Do you trust food manufacturers to be honest when labeling the food?
   ● [Laugh] not necessarily.
   ● To the extent of the law, it requires them to be honest.
   ● It’s what they can get away with.

45:18 Which manufacturers they find to be reputable and why?
   ● I wouldn’t say I don’t trust any; it’s just that. It can just vary, it’s not that one company makes only cereal, they make a variety of food, it’s always going to depend on what the specific food is.
   ● For a while we bought Hodgson Mill, all their stuff is organic. My favorite was the cornmeal which I can’t find any more.

46:30 Any more than you don’t trust, or do trust?
   ● We used to try to go for the private label brands because they are not mass produced, but then I realized all of those just come from the same source with different labels on it.
   ● Hostess, Little Debbie’s, expiration dates are two years from now, you know they are not probably good, things like that (Twinkies-live forever). Just looking at this
(Goldfish) the sell-by date is in December, knowing that it's not going to sit on the shelf for a year, there are still additives in here, but companies that have long expiration dates (she would not trust).

47:43 **What would influence you when making a purchasing decision in the grocery store?**

**What appeals to you the most?**
- Ingredient list, rule of thumb is 5 to 10 ingredients that we know what they are and I feel comfortable with them.
- We use general shopping rules: least list of ingredients, least shelf life, but those are the most expensive products, as a family, we have to mindful of our budgets, we have to say what we have to sacrifice in our bodies.

48:56 **Where would you think this labeling would be most effective on the food package?**
- Front, if it was visible like they did the gluten-free, upper right corner.
- I like when they separate out per serving (Goldfish).
- Servings for sodium (when you eat the whole thing).

50:00 **Would you like to see a designation in the Ingredient List? Which ingredient was an artificial additive?**
- All nodding yes.
- Separated.
- Bold.
- Designation to show what is artificial.

50:29 **In what form would you like to see this labeled on the front of packages?**
- If they are just going to list a bunch of names I don’t know that does not help me, if I knew what they were for “x amount of additives for this reason” I like to know what the purpose is.
- I would like to know what it is for, bleaching agent, filler.
- I like the idea separated, but I like how it is now, in order of amount.
- I agree, I know if it has something I don’t know it’s the last thing, it helps me gauge, but also specifying what it is used for.
52:24 **Do you think you would like to see it the form of a logo, icon or graphic?**
- It might make it easier.

52:35 **Do you think it would get lost in the other logos and icons on the front of packaging?**
- It can’t imagine that the companies would make it visible, they would want it small so you would have to search for it, and not draw attention. The companies would try to be lost.
- But wouldn’t that be more believable? If it has to be on something and it is not on this one, the absence would be telling. If they had to put the label on there, I would trust it more.
- We would trust it more if it has to be on there, people can make a decision based on a treat, peanut butter cups.
- Standardized logo or icon would be good, that would be my visual trigger to go to it to see what exactly what it is. It would help me make a better consumer decision, but I am not sure that that would be what the manufacturers would want.

54:40 **Do you have anything else you wanted to add, about the standard idea of labeling, concern additives in food?**
- I like it standardized because otherwise it just starts to look like promotional efforts, across the boards, like the organic seal, the nutritional label, the authoritative nature comes from this.

55:11 **So we have this as a standard thing in our country (pointing to a box with the Nutritional Label and Ingredient List on the side) so having this be here, do you feel because it is standard you trust it?**
- Yes, I feel it is believable
- Nods from 2 people
Is there anything else anyone wants to add to the discussion about shopping habits, ingredients, artificial additives, labeling before we wrap up?

- We have the power, the more people that read labels, you have a group right here, if you look at the stuff that has red dye and yellow dye, that has disappeared in the last few years, buying power is important, send the companies massages, we need to be more proactive about telling companies to take the stuff out and not buy it.

- Coke has this commercial about coca cola is a great brand, we are great we have water and smaller portions, a marketing ploy, “we” are still ok as a company. They might be feeling this in their pocketbooks, that people are making better decisions.

- The stuff that is good for you costs more money; we want everything to be cheap, it’s either or.

- It makes no sense that the processed foods are the cheap foods, to buy this crap that has highly processed, more work should cost more.

- With that same theory, if it is fresh, you need to buy more of it, and it spoils faster, and then you have to buy more. We stay away from cans, some frozen, try to do fresh.
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