Theses

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The potential for misleading visual communication on food packaging

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The Potential for Misleading Visual Communication on Food Packaging

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Abstract

Consumers today are becoming more health conscious in light of America's growing obesity epidemic. Because of this, food companies often selectively highlight the healthfulness of their products, while carefully de-emphasizing the unhealthy components. These messages are frequently communicated by the food packaging itself, because packaging is a major influence on a shopper's perception of the food inside. The design of the food package, comprising both the two-dimensional surfaces and overall three-dimensional form, conveys these messages through variables related to color, imagery, typography, language, and shape.

This thesis examined both organic and natural food packaging to uncover how healthfulness is communicated in each product category. Graphic design variables promoting healthfulness were analyzed in conjunction with actual nutritional information to discover their congruency. In addition, other nutritional message claims were researched to find out whether they were regulated or unregulated by the government. These findings led to design applications that were intended to educate the public about these various claims and encourage consumers to make informed buying decisions. The applications were placed in a grocery store context and used unexpected formats and placements to attract consumer attention.

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Acknowledgements

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Problem Statement

The definition of the word *green* has acquired multiple new meanings in the last several decades. In addition to referring to color or implying inexperience, green now signifies environmental concern and sustainability. When companies promote their commitment to the environment, their methods can range from truthful to dishonest, depending on the accuracy of information in their messages. At one end of the spectrum is *green education*, which refers to messages that promote the genuine commitment to sustainable practices. *Greenwashing*, at the other end, refers to the practice of spreading misleading positive messages about a company's environmental policy in order to conceal its negative actions.

Green has also been used to signify healthful and nutritious food, in part because of its direct color association with many fruits and vegetables. Since consumers today are becoming more health conscious in light of America's growing obesity epidemic, food companies often selectively highlight the healthfulness of their products, while carefully de-emphasizing the unhealthy components. These messages are frequently communicated by the food packaging itself, because packaging is a major influence on a shopper's perception of the food inside. The design of the food package, comprising both the two-dimensional surfaces and overall three-dimensional form, conveys these messages through variables related to color, imagery, typography, language, and shape.

This thesis will examine both organic and natural food packaging to uncover how healthfulness is communicated in each product category. Graphic design variables promoting healthfulness will be analyzed in conjunction with actual nutritional information to discover their congruency. These findings will be significant in conceiving an ideal solution(s) for promoting the benefits of these products in the application portion of this thesis.

Project Relevance and Importance

It is vital to understand how marketers are using message-making strategies to accurately or ambiguously promote the healthfulness of their products, especially considering that packaged food is generally less nutritious than fresh food and often makes up a large share of the average person's diet. This thesis study will investigate how graphic designers, in conjunction with food marketers, can employ various strategies to truthfully communicate a product's healthfulness. Doing so will positively impact consumers' choice of nutritious foods.

Explanatory Diagram

```
                    ( Graphic Design )

                                          ┌──────────────────────────────────┐
                                          │      Green Message-Making         │
                                          │  ←──────────────────────────────→ │
                                          │  Green Education    Greenwashing  │
                                          └──────────────────────────────────┘

          ( Apparel        )      ( Nutritional      )      ( Cosmetic        )
          ( Message-Making  )      ( Message-Making   )      ( Message-Making  )

                                          ┌──────────────────────────────────┐
                                          │         Packaged Food             │
                                          │  Organic   Natural   Conventional │
                                          └──────────────────────────────────┘
```

Product Attributes

Ingredients	Healthfulness
Nutrition facts	Degree of processing
Organic	Certifications
Natural	Awards
Conventional	Taste

Package Surface	**Physical Package**
Color	Color
Imagery	Texture
Typography	Overall shape
Emphasis	Sustainability
Language/Tone	Material
Negative space	Finishing

Relationship of Package Design Exterior with Actual Inside Product

←──────────────────────────────────→
Congruent   Incongruent

Elements	**Principles**	**Production**
Space	Hierarchy	Format
Shape	Position	Material
Line	Harmony	Construction
Typography	Size	Durability
Color	Repetition	Legibility
Imagery	Overlapping	
Texture		

(Audience Interpretation)

Outcomes

Package opinion	Industry growth
Product opinion	Health effects
Purchase decision	

(Graphic Designer)

Selected Key Questions

1   Does incongruity exist between a package's message and the nutritional content of the food? For example, does the phrase *100% natural* on a box of granola bars correspond with an ingredients list that contains several items that are not found in nature?

2   How do the terms *green education* and *greenwashing* apply to nutritional message-making?

3   How does food package design incorporate these messages?

4   What is the relationship between a package's primary display panel and the adjoining secondary panels? What kinds of information are typically presented on each panel?

5   How can graphic design variables be used on natural and organic food packaging to accurately display its nutritional information?

Associated Areas of Study

Package Design

At a basic level, packages are storage containers meant for keeping and preserving objects over an extended period of time. Packages also function as communication devices when an object is presented for sale. The conception and creation of packages are the focus of this field (Groth 4).

Nutrition

Nutrition is the process by which living organisms acquire and consume food to promote growth and cell repair. The scientific study of nutrition is concerned with the composition of edible foods, the development of dietary guidelines, and the role that specific foods and nutrients play in promoting good health ("Nutrition").

Marketing

This field concentrates on the creation, communication, and distribution of goods and services that hold value for the public ("Definition of Marketing").

Ethics

As a branch of philosophy, ethics is concerned with human values and whether certain actions are right or wrong. In practice, ethics function as a code of conduct for human behavior and guide individual and corporate decision-making ("Ethics").

Information Design

This field is closely linked with graphic design. Information design involves streamlining data and presenting it as clearly and accessible as possible in a visual manner ("Definitions").

Cognitive Psychology

This branch of psychology is focused on internal mental processes such as attention, language, perception, decision-making, memory, and learning (Logan). In the context of this thesis study, cognitive psychology will act as a tool to aid in understanding which parts of a food package people focus their attention on while grocery shopping and how they perceive and interpret the overall design and nutritional information on these packages.

Behavioral Psychology

In contrast to cognitive psychology, behavioral psychology examines the outside forces and actions shaping human behavior. This field relies heavily upon empirical research and learning theories such as classical conditioning, operant conditioning, and social learning. By understanding these models, one can develop strategies to influence or alter behavior in a positive way ("Archival Description").

Consumer Behavior

This area of study looks at the multitude of factors influencing people's decisions to buy products and services. Consumer behavior is an interdisciplinary field that includes psychology, sociology, and economics ("Dictionary").

Precedents

This section describes existing research and models that have relevance to this thesis study. Considering existing research is important in order to determine the areas that have been thoroughly studied and those that have not. This thesis study will build upon research that has already been conducted and make a new contribution to the field of graphic design.

The six precedents that follow are deliberately taken from diverse areas of study. In addition to graphic design, these fields include information design, psychology, nutrition, food package design, and marketing. These fields will have a positive impact on this thesis study and help to shape the ensuing research and discovery process in new and unexpected ways.

Precedent 1
Envisioning Information
Edward Tufte

**Description**

Edward Tufte is a well-known statistician and information designer who has taught graphic design, statistics, and economics at Yale University and Princeton University. In *Envisioning Information*, Tufte demonstrates how to cleanly and accurately portray visual information and data to reduce viewer confusion. He emphasizes the reduction of *chartjunk*, his term for distracting decorations such as thick lines, grids, and labels that do not contribute to the message of the overall visual. In the first example below, the dark black boxes around each marshalling signal command more attention than the figures themselves. The dashed lines around each handheld signal device do the same thing. In the bottom example, Tufte has reduced the unimportant lines and eliminated the dashes. The addition of small spots of bright color emphasize the most important content: the position and movement of the signal devices.

Visual Examples
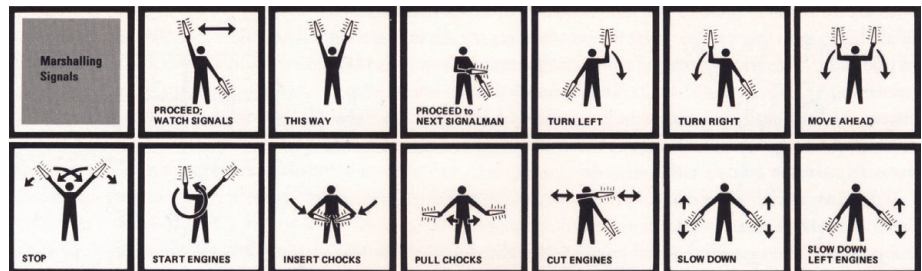
Thickly outlined boxes interact to create visual vibration and distract from important signal diagrams.
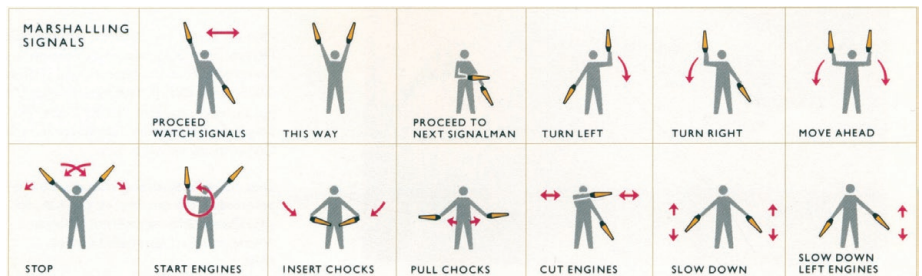
Ideal use of color and line to establish hierarchy and emphasize important content.

Significance

The information design strategies that Edward Tufte describes in *Envisioning Information* are very relevant to this thesis study. Although Tufte talks primarily about design in the context of diagrams and graphs, his discoveries easily relate to the communication of information through food packaging. The two images above show how much clearer and intelligible important information can be when insignificant details are minimized. Tufte's work provides a solid foundation from which to investigate the best ways to portray crucial nutritional information on food packages.

Precedent 2
The Persuasion Knowledge Model
Marian Friestad and Peter Wright

Description

Marian Friestad and Peter Wright are marketing professors at large universities. Their research in persuasion led them to develop the Persuasion Knowledge Model (PKM) to further explain how people interact with persuasive message attempts. Previous studies of persuasion have not accounted for the influence that an individual's *persuasion knowledge* has on his encounters with attempts by marketers to persuade him. Persuasion knowledge is information accumulated over time about persuasion tactics and ways an individual can cope with these tactics. The diagram below shows the relationship and interaction(s) between the target (the recipient of the persuasive message) and the agent (the creator or distributor of the persuasive message).

The center of the diagram displays the persuasion episode, the message intended to influence the consumer. To the right of this message is the persuasion attempt, everything else that impacts the target's perception of the message. To the left of the persuasion episode are persuasion coping behaviors, strategies the target has developed over time to deal with a persuasive message. It is important to note that despite conscious knowledge of persuasion, targets do not always resist it.

For example, a persuasion episode in a grocery store could be the interaction between a food product and a consumer when the consumer picks up the package to look at it. During this time, the messages on the package communicate with the consumer. The price of the product, other advertisements that surround it, and the aisle where its located all make up the persuasion attempt and influence the consumer's perception of the food package. The target's (consumer's) persuasion coping behaviors are practices he has developed over time to handle this kind of persuasive episode. If the consumer knows he is particularly susceptible to buying appetizing cookie packages, he might remind himself that he is trying to eat healthier to lose weight.

Visual Example
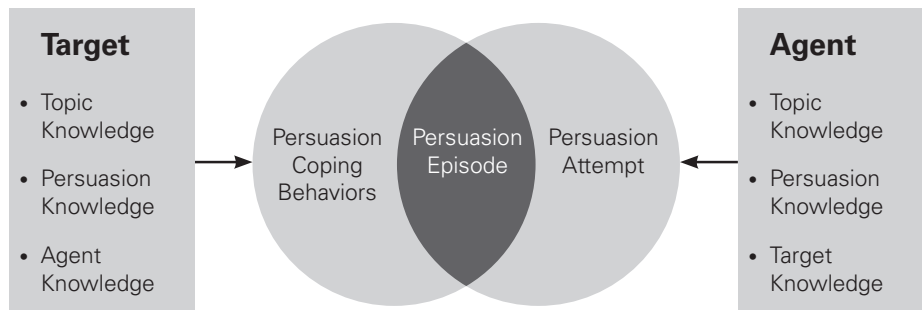
The Persuasion Knowledge Model (PKM) emphasizes the importance of target beliefs about persuasion, the topic, and the agent in influencing encounters with persuasive messages.

Precedent 2

The Persuasion Knowledge Model *continued*
Marian Friestad and Peter Wright

Significance

In their article introducing the PKM, Friestad and Wright note the lack of educational initiatives to inform the public about persuasion in everyday situations. Those that do exist emphasize topic knowledge, or learning about the topic under persuasion. For example, these initiatives might recommend learning about the ingredients in face creams and the benefits or detriments of these ingredients in order to deal with persuasive advertisements about these creams' ability to make skin look younger. Instead, Friestad and Wright argue that educating people about the persuasive tactics themselves is more useful. By teaching people about persuasion knowledge and how they can develop their own self-coping strategies, they will be better equipped to handle persuasion in a variety of contexts.

The PKM model can easily be applied toward understanding how consumers interact with packaged food products. Friestad and Wright's recommendation to educate the public about persuasion strategies corresponds with this thesis study's goal of informing consumers about the persuasive power of nutritional messages that are displayed on food packages. The PKM model and its educational arguments serve as a starting point for identifying ways to inform consumers during the application portion of this thesis.

Precedent 3
Traffic Light Labeling
Food Standards Agency, United Kingdom

Description

The Food Standards Agency, as the United Kingdom's consumer health and nutrition bureau, strives to inform the public about issues concerning food in an understandable manner. The "traffic light" system is an attempt to help consumers make food decisions. These traffic lights are placed on the front of packaged food labels and containers, and show the total fat, saturated fat, sugar, and salt content of the product. The Food Standards Agency recommends that the public decrease the intake of these four nutrients to maintain a healthy diet.

The color red indicates that a food is high in that nutrient, and should only be eaten occasionally. Yellow-orange means that a food has an average amount of the specified nutrient, and should be eaten in moderation. The color green shows that a food is low in that nutrient, and is a healthy choice. A food with mostly green lights is generally considered more nutritious than one with several red lights.

This basic system allows consumers to quickly compare different products without analyzing the nutrition information panel in depth. However, the traffic light system does not have a standardized design. Each company can choose how to show this information on their packages as long as the four nutrients and corresponding color-coding are displayed.

Visual Examples

The Food Standards Agency's traffic light system varies across food manufacturers.

Significance

The traffic light system provides a useful model for how to distill complex nutritional information into simple visual elements such as shape and color. Due to the lack of consistency, this model also demonstrates how labeling schemes can be confusing despite the intended clarity. The traffic light labels provide a helpful starting point when looking for ways to convey information on food packages in a manner that will be factual and save time. Furthermore, this system demonstrates the powerful connotations that colors can have when applied to food packaging, which is a key component of this thesis investigation.

Precedent 4

The Six Sins of Greenwashing
TerraChoice Environmental Marketing, Inc.

Description

TerraChoice is a marketing agency that specializes in environmental sustainability, helping companies to promote a genuine commitment to the environment. With the knowledge that the amount of green message-making for consumer products is increasing, TerraChoice did extensive market research in six large box stores to discover whether these environmental claims were truthful or not. They found that all but one of the 1,018 products they looked at had misleading or entirely false claims. As a result of their investigation, the agency created the "Six Sins of Greenwashing" to categorize these claims and educate consumers. Each sin is applied to nutritional message-making below.

The Six Sins of Greenwashing

1 **The Sin of the Hidden Trade-Off:** Claims that a product is environmentally friendly based on one factor, while ignoring more important issues.
Example: High fiber granola bars that contain many processed ingredients, including several types of manufactured sweeteners, and have chocolate with confectioner's shellac as one of the first ingredients.

2 **The Sin of Vagueness:** A claim that is not clearly defined and can easily confuse the consumer.
Example: Natural Cheetos. This is not a food that can be grown in or directly sourced from nature, so why should it be considered *natural?* Furthermore, some of its ingredients, such as maltodextrin and disodium phosphate, are items that must be manufactured by humans; they cannot be grown.

3 **The Sin of Fibbing:** Claims that are simply not true, and do not have evidence to back them up.
Example: A jar of organic pasta sauce that claims to be certified by Quality Assurance International (a common certification agency), but the certification is actually false.

4 **The Sin of No Proof:** A claim whose supporting evidence is not readily accessible or available to the general public.
Example: A health claim on a box of cereal that requires extensive research to verify.

5 **The Sin of Lesser of Two Evils:** A claim that is true but serves to distract consumers from the fact that the category of products is not environmentally-friendly.
Example: Toaster pastries with no trans fats. These still contain high amounts of sugar and calories, and the claim may distract from the fact that toaster pastries in general are not very nutritious.

6 **The Sin of Irrelevance:** When a product makes a truthful claim that is unimportant to its overall sustainability.
Example: Fruit snacks with no cholesterol. Foods made from plants (including fruits) never contain cholesterol, therefore this claim is irrelevant and may serve to distract consumers from the fact that the fruit snacks themselves are not particularly healthy.
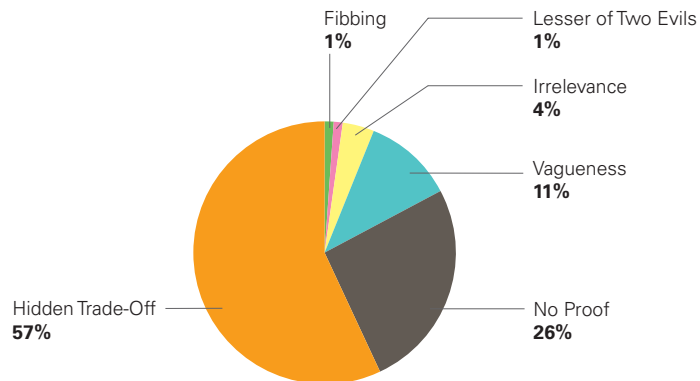
Precedent 4

The Six Sins of Greenwashing *continued*
TerraChoice Environmental Marketing, Inc.

**Sins Committed
by Category**

Fibbing
1%

Lesser of Two Evils
1%

Irrelevance
4%

Vagueness
11%

No Proof
26%

Hidden Trade-Off
57%

This pie graph illustrates how the products from TerraChoice's investigation can be organized into specific greenwashing categories.

Significance

The model developed by TerraChoice Environmental Marketing is useful because it defines greenwashing based on extensive market research. This thesis will examine green message-making as it relates to health claims that are being made about food products. The examples on page 14 show the Six Sins of Greenwashing applied to nutritional message-making and will serve as starting points for developing criteria to understand and identify possible nutritional misrepresentation on food packaging.

Precedent 5
GoVeg.com Website
People for the Ethical Treatment of Animals (PETA)

Description

People for the Ethical Treatment of Animals (PETA) is an animal rights organization dedicated to stopping animal cruelty and suffering at factory farms, laboratories, and other places. They promote their message through educational initiatives, celebrity endorsements, and protests. GoVeg.com is a branch of their main website to educate people about the benefits of vegetarianism. This extensive site provides health information about being a vegetarian, numerous recipes, and links to other sources. The website also has articles and videos (which are rather shocking) about the harsh realities chickens, cows, and other animals face in the meat industry.

Stickers available from www.goveg.com help PETA *spread their message.*

Significance

The vegetarian movement has obvious connections to natural and organic food categories. Many people who become vegetarian are interested in leading a healthy lifestyle, and these people may be more inclined to consume natural and organic products. This thesis study will investigate ways to educate people about the benefits of these two specific food categories. PETA's many avenues of promotion (websites, videos, advertisements, pamphlets, stickers, etc.) demonstrate the wide range of promotional tools available to accomplish these educational goals, and how each can be successful.

Precedent 6
Way Outside the Box
Catherine Arnold

Description

Catherine Arnold's article "Way Outside the Box" appeared in *Marketing News* magazine during the summer of 2003. In this article, she discusses the significance of packaging in consumer purchasing, since 72% of shoppers make buying decisions at the point of purchase. However, the package *structure* (the physical, three-dimensional form) is now seen as the clearest way to differentiate a product from its competitors in the store. To do this, a structure should evoke consumers' emotions or memories, fulfill their needs, or make the package more convenient so they have more positive experiences with it.

Arnold provides case studies of three brands that each revitalized the structure of their packaging and subsequently increased their sales.

1 **Dean's Milk Chug**

Dean Foods needed a way to boost their sales of milk to children, teenagers, and young men, which were all groups that had declining milk consumption. They had to find a way to make milk "cool" so it would appeal to youth and effectively compete with soft drinks and other kid-oriented beverages. Designing a single-serve package was also important, given the consumer demand for portable products.

The result was a taller, easy-to-grasp plastic bottle with a contoured cap that echoed the shape of antique milk bottles. The modern packaging and portability appealed to younger consumers. The white background of the bottle provided an effective backdrop for colorful graphics, and the tall, slim bottle took up less shelf space than the previous paper cartons. As a result of this structure change, Dean Foods saw both milk sales and youth milk consumption rise in the following years.

2 **Listerine PocketPaks Oral Care Strips**

When Listerine developed the idea of a dissolvable breath strip, this innovative product demanded an innovative package. The company wanted the package to be small, portable, and easy-to-open to allow for sharing in a social context. The resulting square container with a flip-top lid accomplished these goals, and when the PocketPaks were introduced into stores in October 2001, demand for the new product was huge.

3 **Dutch Boy Twist and Pour Paint**

The owner of Dutch Boy paint, Sherman-Williams Company, decided to reinvent the decades-old metal paint can in 2001, to appeal to the growing number of women engaging in home decoration projects. After extensive consumer testing, they settled on a short, square plastic container with an easy-to-pour spout. The handle on the side and the twist cap make it easier for women to carry and open the container.

Feedback from female consumers was overwhelmingly positive, and shortly after its introduction in July 2002, Dutch Boy became the most widely distributed paint brand in the United States and Canada.

Precedent 6
Way Outside the Box continued
Catherine Arnold

Significance

Catherine Arnold emphasizes the positive effects of package structure on consumer opinion and purchasing, and provides solid evidence to back up her views. This thesis study will investigate effective ways to communicate accurate nutritional information. Examining the connection between package structure and nutritional information (please see Matrix C on page 65) reveals the current relationships, if any, between the two. The knowledge that package structure plays an important role related to in-store product differentiation shows that finding a way to translate product information into three-dimensional forms may offer truly nutritious products ways to differentiate themselves from less healthy competitors. Since many companies are hesitant to change package structure because of increased cost, this is an area that has yet to be thoroughly explored but may offer great rewards.

Research

The research for this thesis study was focused on several areas in order to undertake and provide the basis for a well-rounded and thorough project. Graphic design was the main area of concentration, and decisions related to color, typography, and shape were of particular importance. Package design was another area of important focus, and research was done to understand the U.S. labeling requirements on food packaging, as well as the components of labeling that are not currently regulated. Understanding these labeling regulations is especially important, since they play such a significant role in the design applications of this thesis.

Because this investigation centers on food products, a broad overview of nutrition and the aspects of a balanced diet are discussed. This information will also be incorporated into the messages communicated by the design applications for this thesis as they encourage people to make healthy choices. Lastly, the realm of consumer behavior was researched to understand how food packaging and educational materials about nutrition impact consumers and influence their beliefs and decisions.

Graphic Design
Elements

In the Synthesis section of this thesis (please see page 45), various design elements are examined to see how they are used to communicate nutritional messages on food packages. Although these elements do not convey verbal information, their nonverbal influence can be just as powerful as the content of the text. Graphic design elements are components that can be manipulated by a designer to change the meaning of a message. Elements relevant to this thesis are shape, color, typography, line, and edge.

Shape

Shape is one of the most basic elements. The simplest geometric shapes are circles, ellipses, triangles, squares, rectangles, and polygons. These basic forms can then be altered, combined, and rearranged to make more intricate and elaborate shapes (Krause 125). In this investigation, food packages will be examined for rectangular and circular shapes. Although all the shapes that don't fit into the two previous categories will be classified as "other," one important form to consider is the banner. This shape commonly appears on food packages and contains nutritional information. A banner is typically rectangular, but has one or more curved edges which indicates movement. The examples below show several different banner shapes that are used to highlight health claims, featured ingredients, and nutrient content claims on their respective packages.

Some common banner shapes   *Examples of banners on food packages*

Color

Color is another basic element, and it holds great power for drawing attention to a specific object and contributing to the overall visual appeal of a design. Colors are divided into primary, secondary, and tertiary. The primaries, red, yellow, and blue, are the building blocks of color, and combinations of them produce secondary colors (orange, green, and violet). To make tertiary colors, a primary color is mixed with an adjacent secondary color on the color wheel (Krause 208). As is indicated by the color wheel on the next page, colors can also be separated into warm and cool categories. Warm colors (red, orange, and yellow) tend to advance in space, whereas cool colors (blue, green, and violet) tend to recede. Careful use of warm and cool colors help emphasize certain parts of a design and can attract a viewer's attention.
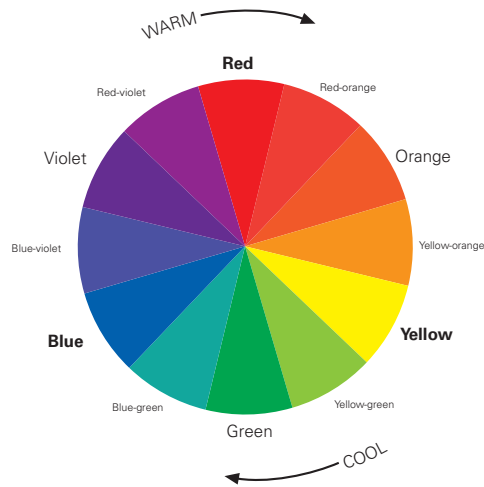
Color

A color wheel organizes the relationships between primary, secondary, and tertiary colors in the color spectrum.

A color palette is considered *monochromatic* when only one main color is used, and black and white are applied to the main color to make shades and tints, respectively. On the other hand, a *polychromatic* color palette uses two or more different colors.

The Udi's Granola package below is a good example of a monochromatic color scheme used on an entire package. The brown tones correspond with the brown granola, and the limited palette gives the package a sophistication and subtlety often missing from cereal containers. Stonyfield Farm's yogurt container uses a small amount of red against a green background to show the flavor of the product. The use of the warm color against a cool color makes the red pop out.

Use of a neutral monochromatic color palette on the Udi's package corresponds with the color of the granola (left). The placement of the warm red against the cool green background allows the red to stand out on the Stonyfield container (right).

Typography

Typography, according to Alex White in *The Elements of Graphic Design*, is "applying type in an expressive way to reveal the content clearly and memorably with the least resistance from the reader" (103). This definition underscores the most important function of typography: to communicate information to an audience. In order to do this, designers must make sure that their typographic decisions are legible; otherwise the reader will not be able to understand the message. This is especially important for food package design, since typography often conveys vital information to its viewers. For example, if the choice of typeface or type size makes ingredient information illegible, a consumer with a life-threatening nut allergy could accidentally buy a product that contains nuts.

There are numerous ways to classify type, and this thesis focuses on some of the most common ones to understand how they are used on various food products. An important distinction between typefaces is serif and sans-serif. *Serif typefaces* are derived from Roman stone carvings, and they are marked by horizontal bars (or serifs) at the end of each stroke. These types were used with the first mechanical printing presses during the 1500s. Over time, serif typefaces have evolved so that the appearance of the serif can now range from very thin to very thick, which is the case with slab-serif typefaces. *Sans-serif faces* do not have serifs at the end of their strokes, and were first used during the early 1800s. Though initially considered unattractive and undesirable, sans-serifs became popular during the 20th century with the rise of the Bauhaus and other alternative design movements (White 117).

Serif Typefaces

This is a serif typeface.   Times News Roman

This is a serif typeface.   Hoefler Text

This is a serif typeface.   ITC Stone Informal

This is a serif typeface.   Rockwell

Sans-serif Typefaces

This is a sans-serif typeface.   Univers LT Std

This is a sans-serif typeface.   Futura

This is a sans-serif typeface.   Helvetica LT Std

This is a sans-serif typeface.   Gill Sans

Typography (continued)	In addition to serif and sans-serif, typefaces can be categorized according to their overall form. An *upright typeface* appears angular and composed of mainly vertical and horizontal lines. This kind of typeface is typically used for large blocks of text because it is very readable. All the typefaces shown on page 22 are upright. A *script typeface* resembles human handwriting, especially cursive writing, and can be slanted or have irregularly-shaped characters. Lastly, *ornamental typefaces* contain decorative elements that would make them illegible if used for entire paragraphs of text. This category of type also contains all the faces that do not fit into either of the previous categories (White 117). Below are examples of script and ornamental faces.

Script Typefaces	*This is a script typeface.*	Mistral
	This is a script typeface.	Market Felt
Ornamental Typefaces	This is an ornamental typeface.	Curlz MT
	THIS IS AN ORNAMENTAL TYPEFACE.	Rosewood

Important variables for typography include stroke weight, posture, and case. The use of these variables allow significant parts of a message to stand out from the rest of the text. Font weight can range from light to extra bold, with any bold weight providing extra emphasis. For this thesis, only light and bold weights were analyzed. Posture describes the slant of the text. Italic letters have, on average, a 12% slant to the right, but their form is different from standard upright letters (Carter, Day, and Meggs 34). Lastly, case refers to the use of either capital or smaller letterforms. Uppercase text is composed entirely of capital letters. Lowercase text uses only small letterforms without capitalization on any words.

Font Weight	Light **Bold**
Posture	*Italic*
Case	UPPERCASE lowercase

|	
Line	Line is another basic element of graphic design that functions to separate portions of text, add decoration, or outline a shape (Krause 172). All lines have a weight, which can range from extremely thin to quite heavy. The heavier the line, the more likely it is to be noticed. On food packages, lines are often found dividing a group of nutritional messages into individual claims. The Health Valley Granola on page 24 has three lines in the upper left hand corner that separate claims. Another common use of line is outlining a shape, and the USDA Organic certification on the cookie box on the next page has a thick, dark line around the circular shape. This outline increases the contrast between the individual shape and the overall background.

Line
(continued)

Different uses of line give emphasis to nutritional message components.

The lines on the Health Valley and Crummy Brothers packages above are *angular lines*; they have straight and mechanical edges and do not have a hand drawn appearance. Though they typically have more regular geometry, angular lines may also zigzag or have irregular curves. Alternatively, *gestural lines,* as seen on the Nana's Cookie Bars package, may have imperfect, more organic edges and look like they were hand generated. These distinctions are used in the Synthesis section of this thesis (please see page 45).

Edge

An object's edge, its outside boundary, can be very important to its overall character. To simplify this analysis, edges were only grouped into two categories: simple and complex. A simple edge is often made from mechanical lines and appears smooth. Many basic rectangle and circular shapes have this kind of edge. A complex edge has many inconsistencies and does not look smooth. For instance, a shape that is outlined by a feathery brush stroke, as seen in the below right example, is complex. To further distinguish the two, simple edges can be formed from angular lines, and complex edges can be made from gestural lines.
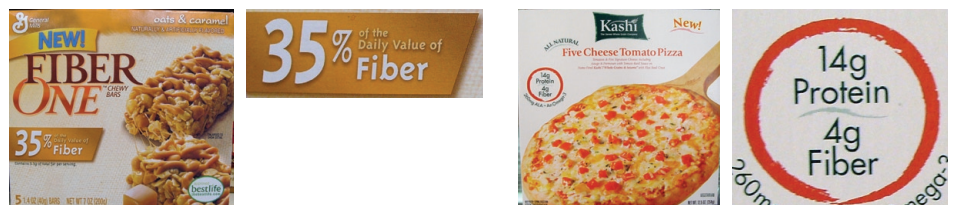
The gold polygon has a simple edge.

The red circle has a complex edge.

Graphic Design
Principles

The elements discussed on pages 20–24 (color, typography, shape, line, and edge) can be arranged in various ways using the principles of graphic design. The principles included in this thesis study are visual hierarchy, relative size (also referred to as scale), repetition, and position. Analysis of these principles on food packages can be found in Matrix B in the Synthesis section (please see page 60).

Visual Hierarchy

Hierarchy is used to show the relative importance of content. The most important content should serve as a focal point for viewers and clearly differentiate itself from the other elements of the design. In Alex White's book, *The Elements of Graphic Design*, he argues that information should be expressed through no more than three levels of importance: most important, least important, and everything else. Making small distinctions between the content in the middle of the hierarchy scale can confuse the viewer because these differences will not be readily apparent (63). Following his logic, this thesis study will only examine differences between dominant and secondary components.

Unclear hierarchy

Clear hierarchy

The examples above show variation in hierarchy. The package at left does not have a clear visual hierarchy. Although the cereal's name, Organic Wild Puffs, stands out because of its large size and neon yellow color, the bright animal graphics around it and the blue wavy lines in the background compete for the viewer's attention. The bowl of cereal at the bottom of the box is also obscured by the organic symbol and heart disease health claim. In contrast, Kellogg's Rice Krispies' package design has a straightforward hierarchy. The product name, bowl of cereal, and cartoon characters all come across as dominant elements. The small size of the brand name, Nutrition Highlights, and product description near the top make them secondary components. In order to ensure that the audience fully understands the content, it is important for designers to employ clear decisions when choosing which items to emphasize and which to de-emphasize.

Relative Size

Scale, another term for relative size, is an object's overall magnitude in comparison to other elements in its vicinity. This is an important principle for communicating significance. When an object's size is unexpectedly large or small in relation to other objects in proximity to it, it can become a main focal point. The following advertisement for Ginsana All-Natural Energy Softgels uses a scale shift to draw attention to the fact that something as simple as walking the dog can become a major undertaking if you don't have enough energy.

This unexpected use of relative size catches the reader's attention.

Repetition

Repetition involves visually or verbally restating a previously expressed idea one or more times. Repeating design elements reinforces a concept and provides unity. Direct repetition may occur when an element or concept is repeated in exactly the same manner. On the other hand, an element may be repeated with a bit of variation to keep the design interesting while still ensuring that it echoes the previous element in a recognizable manner. This is often referred to as theme and variation (White 59). In the example below, the Annie's Cheddar Bunnies package uses the word *organic* six times. Three instances of the word appear in the same typeface and can be considered direct repetition. The additional examples also show the word, but they are presented in different typefaces, orientations, and sizes from the first three. The Nancy's Yogurt container uses repetition in a similar way.

Position

The position of a visual component can influence its hierarchy and whether or not it is easily seen by the viewer. In the United States, people read text from left to right and top to bottom. Thus, the lower right hand corner of the page serves as a natural place for pause. When an object is placed in the lower right hand corner of a page, the viewer's eyes are more likely to rest there than any other location in the composition. This is why advertisements often put important brand information or logos in this location. The advertisement for Ginsana All-Natural Energy Softgels on page 26 follows this convention.

Food packages tend to have important information along the center axis of the box or bag, and the most crucial content is often placed directly in the center of the package. In a crowded supermarket, this makes it most likely that the information will be seen by hurried shoppers. If the information was placed in one of the corners or along the edge of the package instead, it would be less likely to catch people's attention.

These packages each use a central axis to position main elements. Crucial content, such as brand name and product name, is placed in the center of the packages.

Conclusion

The different graphic design elements and principles described on pages 20–27 form the building blocks of a well-designed composition. These components are used on food packages to convey nutritional messages and emphasize certain benefits a product might have. The application of graphic design elements and principles to food packages is discussed in more depth in the Synthesis section (please see page 45). To ensure a fuller understanding of packaging in general, a brief history of packaging is presented on the following page.

Package Design and Labeling
The Visionary Package
Herbert Meyers and Richard Gerstman

History of Packaging

This Greek amphora (c. 540 BCE) was used to store food and drink.

The Heinz tomato ketchup bottle is one of the most easily recognizable contemporary storage containers.

Packaging as it is known today is everywhere, containing items as small as diamond rings and as large as refrigerators, and functioning as a visual salesperson to deliver messages about its inside product. Though using packaging for this purpose only began about a century ago, packaging in its most basic form has been a part of human life for thousands of years.

Packaging involves placing at least as much (or sometimes more) emphasis on the container itself in comparison to the product inside, which can be done through decoration or the careful use of special materials. The development of true packaging began in ancient communities when containers were used for storage and transportation. Woven baskets, clay pots, jars, and bottles are all examples of containers used by people several millennia ago (Meyers 8). Despite their utilitarian purpose, ancient people took great care and pride in creating these containers, as is evidenced by the elaborate decoration many of them display. Archeologists have discovered many beautiful examples of these package predecessors, such as Greek jars with scenes from everyday life painted in many colors (8–9, see image at left). As Herbert Meyers and Richard Gerstman note in their book *The Visionary Package*, "Although primarily functional and not as yet visionary…[these packages] initiated an evolutionary trend, suggesting that the container's importance rivaled its contents" (9).

Preserving extra food that could not be eaten immediately was the primary use of these early containers. Over time, people discovered which materials were best suited to this purpose, and they focused their efforts on improving them. Clay pottery was widely used as containers for food and drink in ancient times. However, a breakthrough in packaging occurred with the development of glassmaking. To make glass, limestone, sand, soda, and silica were heated at high temperatures and melted together. The translucency and many colors of glass quickly made it a prized commodity in early civilizations (Meyers 12). By the 1700s, split mold glassmaking was invented as a way to satisfy the high demand for glass containers, which were used to store foods and liquids. Paper labels were added to the bottles to mark their inside contents, and these containers started to more closely resemble the packages seen today (13).

Even more important than glass was the creation of mass-produced paper and sheet metal for the nascent packaging industry. Paper bags from flax fibers and linen rags were first introduced in England, with paper boxes shortly thereafter in 1817 (Meyers 14). The technique of sealing glass bottles to prevent spoilage was developed in France in the early 1800s, followed by airtight tin can packaging in England in 1810 (15–16). Aluminum cans replaced their tin counterparts in the 1960s, and plastic became an important manufacturing material by the 1930s (18–19).

Package Design and Labeling
The Visionary Package continued
Herbert Meyers and Richard Gerstman

History of Packaging
(continued)

The proliferation of packaging itself functioning as a visual salesperson for its inside content began with actual salesmen in the 19th century. They went door to door trying to sell all kinds of health remedies to naïve consumers. These miracle products were often packaged in glass bottles with paper labels, promising to cure a host of diseases and ailments with no scientific proof to back up their claims (Meyers 21). Due to the lack of regulation at the time, these packages could be as deceptive as they wished without any consequences to their manufacturers. Around the same time, many small business owners were selling goods in more truthful packaging, and it was discovered that people were more likely to remember and buy a product if it had a specific name and a distinctive look (23). This sort of branding continued into the 20th century, as larger grocery stores created their own private label brands, such as A&P's Eight O'Clock Coffee, which can still be purchased today (23–24). Many other current, well known brands such as Nestlé, Heinz, Aunt Jemima, and Campbell's were also invented during this time due to innovative insight on the part of their creators (25).

Package Design and Labeling
Food Package Claims
Food and Drug Administration/Center for Food Safety & Applied Nutrition
www.cfsan.fda.gov

The design of food packages has changed quite a bit since the early 20th century, and today's packages include many other elements in addition to a distinctive company/brand logo and product image. Nutritional claims on the front of packages are a widely used method for marketers to communicate the benefits of their products to consumers. The U.S. Food and Drug Administration (FDA) authorizes the use of three types of claims that can be printed on food packaging: health claims, nutrient content claims, and structure/function claims. Both the FDA and the manufacturer of the food product are responsible for ensuring that these claims are accurate. Each type of claim is explained in more detail below.

Health Claims

These statements indicate a relationship between a certain food or ingredient and a lowered risk for a disease or other type of health condition. To be considered a health claim, the statement must mention both a food or ingredient and a health-related condition. For example, "Diets low in sodium may reduce the risk of high blood pressure, a disease associated with many factors."

To regulate these claims, the FDA has three different ways of ensuring they are accurate. The 1990 Nutrition Labeling and Education Act (NLEA) gives the FDA authority to approve claims after thorough review of solid scientific evidence. The more current 1997 Food and Drug Administration Modernization Act states that the FDA may approve claims if a reputable scientific organization affiliated with the National Academy of Sciences has issued an authoritative statement verifying the health claim. Thirdly, the FDA allows *qualified health claims* to appear on food packages after its careful review of the relevant scientific information. These claims indicate a preliminary correlation between a food and a certain disease or condition, so the claim must use qualified language to ensure that the claim is not misinterpreted. An example of a qualified health claim is "Scientific evidence suggests but does not prove that eating 1.5 ounces per day of most nuts as part of a diet low in saturated fat and cholesterol may reduce the risk of heart disease."

This health claim sounds promising, but the fine print at the bottom of the package clarifies that "Diets rich in whole grain foods and other plant foods low in fat, saturated fat, and cholesterol may reduce the risk of heart disease and some cancers."

Package Design and Labeling
Food Package Claims *continued*
Food and Drug Administration/Center for Food Safety & Applied Nutrition
www.cfsan.fda.gov

Nutrient Content Claims

These types of claims state the level of a certain nutrient in a food product, typically using the words *free, low,* or *high*. When the amount of a nutrient in one food product is being compared to the amount of the same nutrient in another, terms such as *more, reduced,* or *lite/light* can be used. Nutrient content claims are typically only found in conjunction with nutrients that have an established daily value, such as fat, cholesterol, fiber, and certain vitamins. There are specific guidelines that define the meanings of these words to ensure consistency across foods. Furthermore, a nutrient content claim can simply state the level of a nutrient in a food; for example, the phrase *0 grams of trans fat* could be found on a package of cookies.

A common nutrient content claim.

Structure/Function Claims

In contrast to health claims, structure/function claims indicate the effect that a food or ingredient has on normal body composition or function. "Calcium builds strong bones" is a common structure/function claim. These claims may appear on both foods and dietary supplements such as vitamins. The FDA does not regulate these claims; thus the manufacturer must make sure that they are truthful. Because of this, structure/function claims on dietary supplements must also include a statement saying that the FDA does not regulate them, and that the specific supplement cannot "diagnose, treat, cure or prevent any disease."

This structure/function claim also includes the mandatory clarification statement: "These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease."

Package Design and Labeling
Certifications
United States Department of Agriculture Agricultural Marketing Service
www.ams.usda.gov

In addition to nutritional labeling required by the government, many products have additional certifications they display to communicate various standards they have met. There are several certifications that are commonly recognized by both governmental groups and the general public. These certifications are listed and explained below.

USDA Organic

The National Organic Program (NOP) is a subdivision of the United States Department of Agriculture (USDA), which controls the standards for production, labeling, and distribution of organic products. The NOP also manages the accreditation of agents who subsequently certify organic products to meet USDA requirements.

If a company wishes to market its food product as *organic*, there are four levels of organic labeling and specific requirements that the product must meet to qualify for each:

100% Organic
"Products labeled as *100 percent organic* must contain (excluding water and salt) only organically produced ingredients and processing aids." These products may display the USDA Organic seal and the seal of the certifying agent. They may also use the term *100% organic* as part of the product's name.

Organic
"Products labeled *organic* must consist of at least 95 percent organically produced ingredients (excluding water and salt). Any remaining product ingredients must consist of nonagricultural substances approved on the National List including specific non-organically produced agricultural products that are not commercially available in organic form." These products can show both the USDA Organic seal and the seal of the certifying agent on their packages. Additionally, the word *organic* may be used in the product's name.

Made with Organic Ingredients
"Processed products that contain at least 70 percent organic ingredients can use the phrase *made with organic ingredients* and list up to three of the organic ingredients or food groups on the principal display panel." However, the package *may not* contain the USDA Organic seal, but it can show the certifying agent's seal.

A Product with Less Than 70% Organic Ingredients
In this case, the word *organic* may not be used on the primary display panel. Specific ingredients can be designated as *organic* in the ingredients list on a secondary panel. Furthermore, neither the USDA Organic or certifying agent seals may be shown anywhere on the packaging.

Whole Grain Stamp

As a nonprofit consumer advocacy group, the Whole Grains Council was formed in 2002 as an effort to encourage whole grain consumption. The group was originally composed of grain millers, manufacturers, chefs, and scientists, but has since expanded to involve more than 200 members, including many prominent members of the food industry.

Some of the Whole Grains Council's goals are:
· Helping consumers find whole grain foods
· Educating consumers on the health benefits of these foods
· Encouraging food manufacturers to make products containing whole grains
· Helping the media spread accurate and positive messages about whole grains without criticizing refined grains.

The official definition of whole grains:
"Whole grains or foods made from them contain all the essential parts and naturally-occurring nutrients of the entire grain seed. If the grain has been processed (e.g., cracked, crushed, rolled, extruded, and/or cooked), the food product should deliver approximately the same rich balance of nutrients that are found in the original grain seed."

The Whole Grain Stamp was created to help consumers identify products in the store that are made from whole grain. The contrasting colors used in the stamp allow consumers to easily see it on crowded food packages. There are two different versions of the stamp.

The 100% Stamp
This stamp indicates that all of the grains in the product are whole grains. A product can carry this stamp if it contains at least 16 grams, a full serving, of whole grains per calculated serving size of the product. The number at the bottom of the stamp states exactly how many grams of whole grains are present in each product serving.

The Basic Stamp
Though similar to the 100% stamp, this version does not have the black band with *100%* in the middle of it. Packages with this stamp may contain some refined grains, but they must also contain at least 8 grams, a half serving, of whole grains.

Certified Vegan

Vegan Action is a nonprofit group that has existed for 10 years with a mission to protect the environment and animal rights and to educate the public about the benefits of a vegan lifestyle. The organization has launched several campaigns to further the spread of veganism and encourage people to buy vegan foods and products. The Certified Vegan Logo is part of the Vegan Certification Campaign, an effort to mark foods, clothing, cosmetics, and other products that do not contain animal products and are not tested on animals. The logo gives consumers an easy way to tell if a product is vegan at a glance, without scouring the tiny print of its ingredients list.

Though this logo is becoming more widespread, not all products that are vegan feature the logo. Also, consumers should be aware that food manufactured on machinery that also processes non-vegan items can still receive a Certified Vegan logo. Since many companies that produce vegan products are quite small, they are unable to afford kitchens and machinery that contain no trace of animal products. Vegan Action has made the decision to classify products made on shared machinery as vegan because many vegan products actually contain trace amounts of contamination. According to their literature, they feel that doing so does not diminish their main purpose of ending animal cruelty.

Package Design and Labeling
Unregulated Claims and Package Components

Despite the high amount of governmental regulation on package standards such as the Nutrition Facts or the organic seal, there are components of food packaging that have virtually no restrictions placed upon them. Without any sort of regulation, food manufacturers and marketers are free to use these words and claims as they choose, forcing consumers to decide what they actually mean. *Natural*, a common word that is a central focus of this thesis, is currently unregulated by the U.S. government. Featured ingredients and product brand names are additional package components that are not subject to any laws.

Natural Claims

The word *natural* has become increasingly popular over the last few years on all kinds of food products as the number of health-conscious consumers has risen. People equate *natural* with nature, and since nature means healthy to many people, sales of natural products have been increasing. However, there is barely any regulation on the word *natural*, and thus its presence on food packages can mislead consumers. Although people think that natural ingredients must be healthy, that is not always the case. Salt and butter are natural additives, but too much of either can have very detrimental effects on one's health. Furthermore, the majority of food products today undergo some sort of processing, even if the processing is minor and beneficial, such as the addition of extra ingredients to make a product taste better (i.e. adding sugar to a cereal made of wheat flakes) or pasteurizing milk (which kills harmful bacteria). Just because a product has undergone some sort of processing or been somehow modified in a lab doesn't always lessen its nutritional value. Thus, a tomato that has been ripened through an artificial process may not be all that different than one bought at a farmer's market (Crawford).

There are two minor government restrictions on the use of the word *natural*, associated with flavors and meat products. In order for a food to list an ingredient as a *natural flavor*, it must be derived from a fruit, vegetable, spice, meat, seafood, dairy product, or a plant material such as bark. By contrast, artificial flavors are not derived from the aforementioned items ("Title 21: Food and Drugs"). According to the USDA Food Safety and Inspection Service, certain poultry and meat products can be labeled as *natural*, provided they comply with the following definition:

A product containing no artificial ingredient or added color and is only minimally processed (a process which does not fundamentally alter the raw product) may be labeled natural. The label must explain the use of the term natural *(such as: no added colorings or artificial ingredients; minimally processed) ("Meat and Poultry").*

As long as manufacturers comply with these two requirements, they are free to use *natural* as they see fit.

Natural Claims
(continued)

This image shows an example of natural *used on a package of chicken breasts. The claim reads "All Natural," and the fine print explaining this claim states the product is "minimally processed; no artificial ingredients."*

Because of the vague use of *natural,* it should come as no surprise that many consumers are confused about its meaning. In 2002, the National Consumers League surveyed consumers about natural products, and found that 76% of participants thought that a product with *natural* on the package should contain 90 percent or more of natural ingredients. As discussed above, this is not required by law. Eighty percent of participants believed that natural products were beneficial to their health (Crawford). With all this confusion, it would be logical to think that the FDA would create some regulations on the word *natural* in the near future. In reality, it appears that the opposite is true. Though the FDA received two petitions (from the Sugar Association and Sara Lee) asking for a precise definition of *natural* in 2007, Geraldine June of the FDA's Food Labeling and Standards department doesn't believe there is enough evidence to show that consumers are confused. "Even if people interpret [*natural*] in different ways, it doesn't mean there is confusion out there. If there was, then we would definitely raise it as a priority," she said (Gutierrez).

Featured Ingredients

Similar to the word *natural*, featured ingredients are not subject to specific laws, which means that marketers have more freedom to use potentially ambiguous messages. Featured ingredients are specific ingredients that are listed or highlighted on the primary display panel of a food package. Common examples include whole grains, certain vitamins and minerals, and Omega-3 fatty acids. Food packages may also call attention to ingredients they do not contain with phrases such as *no trans fats* or *no preservatives*. Although food manufacturers cannot say that their product contains an ingredient when it does not, highlighting one or two positive ingredients may overshadow the fact that the product actually contains many more undesirable and unhealthy ingredients.

**Company Brand
and Product Names**

Another package component that can contribute to consumer confusion is the name of the corporate brand producing the product, or the product's name itself. Brand and product names are not subject to governmental restriction, and anything goes as long as they don't duplicate an existing brand name. Brand names using words such as *natural*, *nature*, and other wholesome-sounding words such as *farm, homegrown,* or *pure* may lead consumers to assume that the products must be natural and healthy, even if this is not always the case. The list below shows some possibly misleading brand names.

Annie's Homegrown   Health Valley
Back to Nature   Nature's Choice
Gardenburger   Purity Foods Inc.
Garden of Eatin'   Westbrae Natural Foods

Conclusion

This thesis ultimately strives to identify ways to educate consumers about these unregulated package elements and attempts to raise awareness about their meaning (or lack thereof). These goals are discussed in more depth in the Ideation section, which begins on page 84.

Nutrition

MyPyramid Plan
United States Department of Agriculture (USDA)
www.mypyramid.gov

In 2005, the USDA released the new MyPyramid food plan, which was an update of the previous food pyramid. The pyramid is meant to serve as dietary guidelines for the majority of Americans. Shown at left, several bright colors differentiate each food group and the widths of the bands indicate how many servings should be eaten from each group per day. The six groups (as shown on the pyramid from left to right) are Grains, Vegetables, Fruits, Oils, Milk, and Meat & Beans. The triangular shape of each band, which gets narrower at the top, suggests that there are items in each group that aren't as healthy and shouldn't be eaten as frequently (such as apple pie in the fruit group). Finally, the figure climbing the stairs on the left side of the logo emphasizes the importance of daily exercise.

Grains

The Grains group is represented by the orange band on the left side of the pyramid. Common grains are rice, pasta, bread, cold cereals, and popcorn. The MyPyramid website emphasizes the distinction between whole and refined grains, and encourages people to make at least half of their grains whole because whole grains have the most health benefits. The fiber in whole grains helps to reduce the risk of heart disease and constipation. Foods containing fiber are digested slower; thus a person will stay full for a longer period of time, which can also aid weight loss.

Vegetables

The Vegetable group makes up the green section of the pyramid. Vegetables are an important source of nutrients, and most adults should eat between 2 ½ and 3 cups per day. This group can be divided into five subsections: dark green vegetables, orange vegetables, dry beans and peas, starchy vegetables, and other vegetables. The USDA recommends eating a variety of vegetables from each of these subgroups. People who regularly eat vegetables are generally at a reduced risk for diseases like Type 2 diabetes, certain cancers, and heart disease. This food group can also help people maintain a healthy weight if they choose these lower-calorie options instead of higher-calorie foods from other groups.

Fruits

The red band on the food pyramid designates the Fruit group. Like vegetables, fruits are vital to good health, and provide many benefits. The Fruit group consists of fresh, frozen, canned, and dried fruits, as well as 100% juices. Common choices include apples, berries, oranges, peaches, grapes, and raisins, as well as orange and apple juices. The health benefits of this group are similar to those for the Vegetable group. Many fruits are excellent sources of Vitamin C, a necessary nutrient to aid the growth and restoration of body tissues, heal cuts, and prevent illnesses.

Oils

The thin yellow band in the center of MyPyramid represents the Oils. This group contains liquid fats such as canola, olive, and sunflower oils, and solid fats such as butter, lard, and margarine. Additionally, foods that have a high fat content such as nuts, olives, and some fish are included in this group. All oils are made up of a combination of saturated and unsaturated fatty acids. Saturated fats and trans fats should be avoided because they typically raise LDL (bad) cholesterol and increase one's risk for heart disease. On the other hand, unsaturated fats like monounsaturated and polyunsaturated fats are important for health and do not raise cholesterol. These fats, typically found in nuts, nut butters, and fish, should be included in one's daily calorie allowance.

Milk	The Milk group is symbolized by the light blue section. As one might expect from its name, this food group includes all types of fluid milk and other products made from milk (cheese and yogurt). Although milk products that retain their calcium after processing, such as ice cream, are included, those that do not, such as cream cheese and butter, are not part of this group. Calcium provides some of the primary benefits of this group. The calcium in milk helps build bone mass, which is particularly important for young children and teenagers who are still growing. However, consumption of calcium-rich dairy products throughout life also aids the maintenance of bone mass and prevents osteoporosis. Milk products are typically fortified with Vitamin D, since it helps the body absorb calcium. To ensure adequate health benefits, the USDA recommends everyone nine years and older consume 3 cups of low-fat and fat-free milk products per day.
Meat and Beans	The final group in the pyramid is Meat and Beans, which is located on the far right side in the purple stripe. This is a diverse group that contains meat, poultry, fish, dry beans, eggs, nuts, nut butters, and seeds. Because many of the meats in this group have varieties high in saturated fat, the USDA suggests choosing the lean, low-fat varieties. This group provides the main source of protein in American diets. Protein is an essential nutrient and makes up muscles, bones, skin, enzymes, and hormones. Many foods in the Meat and Beans group are also good sources of iron, a mineral that carries oxygen in the blood. Since women and teenage girls are at risk for iron-deficiency anemia because of their regular blood loss during menstruation, consuming the recommended number of servings from this group (5 ounces per day for women) is important. Meats, poultry, beans, nuts, and eggs also contain zinc, magnesium, and B vitamins, which are all necessary nutrients.

Nutrition
In Defense of Food: An Eater's Manifesto
Michael Pollan

Though the U.S. government's food pyramid has been well-researched and can serve as adequate dietary guidelines for most people, the MyPyramid program takes a very general look at food and food products. Michael Pollan, a well known author, professor, and journalist, offers a stricter and perhaps more radical opinion on what Americans should be eating every day. In his book *In Defense of Food: An Eater's Manifesto*, Pollan begins with the simple statement, "Eat food. Not too much. Mostly plants" (1). To explain these somewhat puzzling sentences, he offers five recommendations.

1 **"Don't eat anything your great-grandmother wouldn't recognize as food."**
Pollan discusses that the transition of food from nature-made to man-made has been gradually occurring since the 19th century. Therefore, in order to ensure that one's diet is as unprocessed as possible, if someone a century ago would not recognize a product, it is probably not a good idea to eat it (Pollan 148). For example, would a person living during the late 1800s know what Cheetos are? What about "milk and cereal" breakfast bars? Fruit Roll-Ups? Though these items are part of today's food vocabulary, they would be completely foreign entities to someone living 100 years ago.

2 **"Avoid food products containing ingredients that are A) unfamiliar, B) unpronounceable, C) more than five in number, or that include D) high-fructose corn syrup."**
Though Pollan explains that none of the above recommendations is extremely dangerous, each indicates a food that has gone through significant processing, turning it into more of a foodlike-substance than a real food. He gives the example of bread, which most people would think of as a simple food with few ingredients. In reality, a processed bread such as Sara Lee's Soft & Smooth Whole Grain White Bread has about *forty* ingredients, including such unpronounceable and unrecognizable items as *ethoxylated mono- and diglycerides*, *azodicarbonamide*, and *calcium propinate*. The ingredients list also includes high-fructose corn syrup (Pollan 151).

What do these strange ingredients add up to? As Pollan says, they are all part of the current reductionist thinking about nutrition; that is, good nutrition is simply making sure to eat all the right nutrient components without considering the benefits of whole foods and the experience and enjoyment surrounding the consumption of food (Pollan 28). If this school of thought held true, then processed products with all the right additives, perfect blends of Omega-3 fatty acids, calcium, protein, and fiber would be healthier than whole foods. One only has to look at infant formula to see this is not correct. Though formulas today can be made with all the appropriate nutrients, babies fed human breast milk still do better than their formula-fed counterparts (Pollan 31). Regardless of all the added vitamins and minerals, perhaps Sara Lee's Soft & Smooth bread isn't quite as nutritious as a homemade whole grain bread with only a few ingredients.

3 **"Avoid food products that make health claims."**

As discussed in the problem statement of this thesis, health claims, nutrient content claims, or any other sort of food package claims should not always be taken at face value. The FDA authorizes claims on many substances, including *qualified* claims that allow food manufacturers to put claims that have only preliminary scientific support on their packages (Pollan 155–6). Most food products, even those that can barely be considered food, are eligible for some sort of claim. This confusion makes grocery shopping all the more difficult.

4 **"Shop the peripheries of the supermarket and stay out of the middle."**

Though this strategy reduces shopping to perhaps a quarter or less of most grocery store's square footage, the least processed foods (produce, fresh meat, and dairy) are typically along the walls while the center aisles are filled with packaged products like Sara Lee's bread. Pollan cautions shoppers to be careful even in these areas, though (157). The bakery department also tends to be along the outskirts of the store, and there are all sorts of packaged muffins, breads, and cookies posing as home-baked delicacies to lure unsuspecting shoppers.

5 **"Get out of the supermarket whenever possible."**

To avoid any possible confusion associated with packaged products, shopping at a local farmer's market is the best idea whenever possible. Doing so ensures that the food is fresh, unprocessed, usually locally-grown, and definitely does not contain any health claims (Pollan 157). The number of farmer's markets across the country is increasing rapidly, and finding one close by is becoming easier (158). When people buy food from farmer's markets, they are usually buying from the farmer himself, which allows them to get more involved with their food and ask questions about how it was grown and if any pesticides were used on it. The food is also picked at its peak of freshness, and since it doesn't have to travel hundreds of miles to get to a supermarket, it has a higher nutritional value (159).

Pollan also offers explanations about the types of real foods to eat. He extols the benefits of a plant-based diet, which, in this age of uncertain and changing dietary advice, is the one nutritional recommendation that most dieticians agree upon (Pollan 162). Throughout the book, he emphasizes awareness and enjoyment of food most of all. Being cognizant of each daily meal and its components, and taking time to relish the experience of eating are as important as dietary recommendations such as the government-sanctioned food pyramid.

Consumer Behavior
Influences on Consumer Purchasing

There are a multitude of factors that affect consumer buying decisions. Though a consumer may have a strong intention of buying a certain product when he enters a store, there are many external factors in the store that may serve to change his mind and convince him to purchase something else instead. The package itself, as previously stated, holds the most influence at the point of purchase. But what about the package is so powerful? Is package color an important element to consider? What about its health claims and various nutritional information? External factors also play a role in how a package is perceived and whether it is purchased. Advertising in the store, the color of the store environment, price, brand name, and whether the consumer is rushed all affect consumer decision-making.

Package Color

In the store, a package is often the sole source of advertising for its inside product. Without the help of TV, print, and radio advertisements, the package must function on its own to convince shoppers of its value, taste, and overall appeal. People look to specific clues on packaging to judge the quality of the product and aid their decisions. This is the basis of *cue utilization theory* (VanHurley 59). Extrinsic clues such as package structure, color, price, and brand name are more influential than intrinsic clues (ingredients and the physical product's shape and color) because people find them easier to use (64–5).

A 2007 study by Vickie VanHurley investigating the influence of packaging color on consumer purchase intent found that the color blue had the best shelf impact across all product categories, and yellow had the worst (99). Participants indicated that both red and blue communicated product quality, while yellow packages were perceived as low quality (102). Furthermore, she found that the inherent color of the product influenced the participants' desired color for the packaging. As an example, a bag of bacon-flavored potato rings was used in the study. The color red was the most desirable, visible, and indicated the highest product quality for this product (84–5), presumably because the participants associated the red color of bacon with the red color of the packaging.

Since people often spend little time looking at food packages, color is usually the most important element to grab their attention or convey a message (Mills). Though color associations differ across cultures, there are several associations that for the most part remain consistent across the United States. Red, orange, purple, and grass green can stimulate appetite, while blue suppresses it. Red and yellow are the most commonly used colors for fast food restaurants and snack food packaging because they encourage eating quickly. Though there are few blue foods, blue is sometimes used on packaging because it evokes trustworthiness and reliability (Ibid). Yellow-green is generally avoided on packaging because of its association with mold and spoiled food (VanHurley 44). However, true green often appears on packaging to signify healthfulness. Thanks to popular brands such as Healthy Choice and Snackwell's, which feature bright green packaging and claim that their products are nutritious and good choices for consumers concerned about health, diet, and weight loss, green has become a commonly used color for this purpose. In 2005, Healthy Choice manufacturer ConAgra Foods launched a new marketing campaign titled "Green is Good" to further persuade health-conscious shoppers that Healthy Choice's green packaging implies great taste and good nutrition ("ConAgra Campaign").

Nutritional Messages

With the rise in obesity and obesity-related diseases in America, the number of consumers who are concerned about eating healthy, nutritious food is also increasing. As a result, the nutritional information that appears on packaged food is one of the most important influences on consumer behavior. In addition to the required Nutrition Facts and product ingredients, health claims, nutrient content claims, and structure/function claims (see pages 30–31 for more explanation) also play a role in perceived healthfulness. Research suggests that the Nutrition Facts are a more important source of information for consumers, and they are somewhat suspicious of the various claims (Kozup, Creyer, and Burton 32). However, the presence of a positive health claim (such as one indicating a connection with heart health) on a food package increases consumers' positive attitudes toward the product. When this claim is accompanied by consistent nutritional information, positive attitudes are reinforced (31). When a claim is inconsistent with the Nutrition Facts, people feel less trustful of the claim if it relates to a nutrient that was regarded as important to decision-making (i.e. fat) but their trust is not affected if the nutrient is less important (fiber). Therefore, it is possible for consumers to be misled by claims, but typically only for less important nutrients. In general, when faced with an inconsistency between nutrient claims and Nutrition Facts, consumers tend to regard the Nutrition Facts as valid, and question the claim, since they recognize that claims are created by the marketer (Garretson and Burton 224).

Other External Factors

Color can also be influential in the store environment. A study by Bellizzi and Hite showed that shoppers made more purchases in a simulated blue store environment than a red store environment (360). Blue is known to be calming and peaceful, and subjects indicated that they felt more pleasant in the blue environment than the red one (358). Red, on the other hand, is often distracting and causes anxiety, which could be why the participants had less positive feelings when surrounded by red (348).

Price is a major influence on purchasing, and can restrict what people are willing to buy, but there are ways that marketers can sway people's views of the value they are getting for their money. "Buy one, get one free" promotions, coupons, and other sales convince consumers to buy products and make them feel good about their smart purchase decisions. If a product container appears larger than competing products but has the same price, people will think they are getting a better value. They may also be persuaded to spend more if the product packaging indicates a higher quality product. Designers can accomplish this by using gold and black accents to make a product seem elegant and upscale (Mills).

Finally, another external factor to consider is the prominence of the brand name. Over the past few decades, consumers have become more and more accustomed to buying specific brands and many people are very brand-loyal and would not consider purchasing a similar product from a different company. Established brands such as Heinz, Kellogg's, or Pepsi communicate a certain message to consumers, whereas a novel or local brand may not. Some brands are so established that people refer to the product by the brand name, which is the case for Kleenex and Band-Aid. People may be more willing to buy a brand name product because they already have some familiarity with it.

Internal Factors

In addition to packaging, packaging color, nutritional messages, and external influences, consumer decisions are also affected by personal factors. A consumer's interest in health and nutrition can impact his food choices because if he is very concerned about his health, he may spend more time comparing the Nutrition Facts on packages to find one that fits his desired eating habits. On the other hand, if a consumer doesn't know much about nutrition or doesn't care very much, he will probably not look at the Nutrition Facts very closely. Furthermore, whether a consumer is in a hurry can also impact what kinds of products he buys. To discover the connections between consumer involvement, time pressure, and purchasing, Pinya Silayoi and Mark Speece conducted a study using focus groups in Thailand. Similar to the U.S., Thailand has a competitive packaged food market, strong brand loyalty, and a large number of supermarkets, so their findings are likely analogous to what would be found in the United States (Silayoi and Speece 609). The researchers learned that when consumers were pressed for time, they tended to rely more on visual package elements such as color, graphics, and pictures instead of informational elements to make their decisions (616). By contrast, when people have more time, they depend on informational items such as the product description, ingredients, and nutrition facts, and less on graphical elements (623). However, the majority of study participants indicated that the nutritional information was confusing and should be simplified so that they could more easily tell if a product was healthy or not (620).

People also purchase products based on larger social or ethical beliefs. With the rise of the sustainability movement, more consumers are looking for foods that were grown or packaged in a sustainable manner to show their support for environmental conservation. Purchasing organic or locally grown foods follows this sentiment. Sometimes organic or natural foods will feature a written story on the package about where the food was grown, how the company was founded, or what kinds of superior ingredients were used to make the product. "The story speaks of quality, social and environmental responsibility, and wholesomeness," and makes people feel good about their purchases, says Libby Mills, a Registered Dietitian with the American Dietetic Association and a consumer advocate.

Conclusion

The information explored in the research section serves as an important foundation for the following analysis and ideation phases of this thesis study. With preceding explanations of both graphic design variables (pages 20–27) and food package labeling (pages 30–37), sample packages can be analyzed to determine relationships between graphic design and nutritional messages. Moreover, the distinction between regulated and unregulated package claims as well as influences on consumer purchasing will be essential when brainstorming actual design applications to share with the public.

Synthesis

This section of the thesis study focuses on several matrices that have been created to cross-reference and analyze existing visual examples. This analysis will allow conclusions to be drawn about the examples and guide further research.

Following the description of Matrix A on page 53 is a sample version of the matrix showing how it was used to analyze each product. After this example are matrices that contain information from a large sample of food products. They are organized by category of food (cereal, granola bars, crackers, chips, cookies, yogurt, and frozen dinners). Fifteen products from each food category were analyzed, with an even distribution across conventional, natural, and organic products. A small image of each product is shown on pages 46–52. When selecting products to analyze, an attempt was made to choose a variety of products to represent the broadest sample possible. All products chosen are brand names, and store brands were not included. Please refer to Appendix A (page 161) for a full listing of the surveyed products. Although this sample is as representative as possible, in order to draw more definite conclusions, it would be necessary to analyze a much larger number of products across all categories.

During the analysis, when a product had two or more instances of the same nutritional message component on its packaging (i.e. the word *organic* two times), each instance was treated separately, since they were often very distinct with regard to use of typographic variables, position, hierarchy, etc.

Selected Food Products

Even Distribution of Natural, Organic, and Conventional

Cereals

Selected Food Products

Even Distribution of Natural, Organic, and Conventional

Granola Bars

Crackers

Selected Food Products

Even Distribution of Natural, Organic, and Conventional

Chips

Selected Food Products
Even Distribution of Natural, Organic, and Conventional

Cookies

Selected Food Products

Even Distribution of Natural, Organic, and Conventional

Yogurt

Selected Food Products

Even Distribution of Natural, Organic, and Conventional

Frozen Dinners

Matrix A

Elements Used on Primary Display Panels
for Nutritional Message-Making

This matrix compares graphic design elements that are found on the primary display panels of food packages with components of nutritional messages. Elements of graphic design include typography, color, shape, line, and edge. These are items that can be used by the graphic designer in order to achieve a specific communication goal. Each element involves several variables, such as monochromatic and polychromatic color for the element of color. For a more in-depth discussion of these elements, please see page 20.

The horizontal axis of this matrix examines the various components of nutritional messages. Each component is then classified according to the design elements that comprise it. Please see the Glossary of Terms on page 150 for further clarification and definitions of these items.

Since multiple food packages were analyzed and then compiled into one matrix for the whole food category, numbers were used to show the number of times a certain situation occurred. The example on page 54 shows how the information from a *single* product (Snikiddy Mac n' Cheese Puffs) was analyzed and compiled into a matrix. This snack has the word *organic* twice on the front of the bag. The first instance of the word (above the words *Mac n' Cheese Puffs*) shows a serif, upright typeface in light uppercase. Thus, a "1" was placed in the serif, upright typeface, light, and uppercase boxes in the *Organic* column in the matrix. *Organic* is used a second time on the bottom of the bag, and shares the same characteristics of the first instance except it is lowercase. A "2" appears in each of the boxes where the characteristics are the same, because each "1" is added together. After all of the products in each food category were analyzed using the same method, the boxes with numbers were color-coded to make it easier to see trends among them. The following key illustrates the meaning of each individual color.

Color Key for Matrices A–D

Color	Number of times
Gray	0–2
Purple	3–5
Blue	6–8
Green	9–11
Yellow	12–14
Orange	15–17
Red	18–20

Note

In the matrices, nutrient content claims and featured ingredients are abbreviated nutrient claims and featured ingreds., respectively.

Matrix A/Individual Product Sample

Elements Used on Primary Display Panels
for Nutritional Message-Making

Chips: Snikiddy Mac n' Cheese Puffs

Design Elements	Design Variables	Organic	Natural	Nutrient Claims	Featured Ingreds.	Certifications
Typography	Sans-serif					1
	Serif	2			1	
	Script Typeface					
	Upright Typeface	2			1	1
	Ornamental Typeface					
	Bold					1
	Light	2			1	
	Italic					
	Uppercase	1				1
	Lowercase	1			1	
Color	Green	1				1
	Monochromatic	2			1	
	Polychromatic					1
	Warm Color(s)				1	1
	Cool Color(s)	1				1
Shape	Rectangular					
	Circular					1
	Other					
Edge	Simple					1
	Complex					
Line	Thin					
	Heavy					1
	Gestural Line(s)					
	Angular Line(s)					1
	One Line					1
	Multiple Lines					

Matrix A

Elements Used on Primary Display Panels
for Nutritional Message-Making

Cereals

Design Elements	Design Variables	Organic	Natural	Nutrient Claims	Featured Ingreds.	Certifications
Typography	Sans-serif	3	3	12	12	4
	Serif	3	2	3	4	1
	Script Typeface					
	Upright Typeface	5	5	15	16	5
	Ornamental Typeface	1				
	Bold	4	4	11	13	5
	Light					
	Italic			1	1	
	Uppercase	2	3	6	6	5
	Lowercase	1		1		
Color	Green	3	2	5	2	4
	Monochromatic	3	2	5	8	
	Polychromatic	3	3	10	8	5
	Warm Color(s)	6	1	7	10	5
	Cool Color(s)	3	3	10	6	4
Shape	Rectangular	1				
	Circular				1	4
	Other	3	3	10	5	1
Edge	Simple	4	3	10	6	4
	Complex					1
Line	Thin	2	1	6	2	1
	Heavy	2		2	1	4
	Gestural Line(s)					
	Angular Line(s)	4	1	8	3	5
	One Line	2		7	2	5
	Multiple Lines	2	1	1	1	

Granola Bars

Design Variables	Organic	Natural	Nutrient Claims	Featured Ingreds.	Certifications
Sans-serif	3	3	5	6	2
Serif		1	2	2	1
Script Typeface	1				
Upright Typeface	1	3	7	7	3
Ornamental Typeface	1			1	
Bold	2	2	6	5	2
Light	1				
Italic		1		2	
Uppercase	2	2	2	2	2
Lowercase		2		1	1
Green	1		1	1	2
Monochromatic	2	3	5	5	
Polychromatic	1	1	2	3	3
Warm Color(s)	2	1	4	2	2
Cool Color(s)	1	1	2	1	2
Rectangular	1				
Circular				2	3
Other	1	2	2	3	
Simple	1	2	2	3	3
Complex	1		2		
Thin	1	1	3	1	
Heavy	1	1			3
Gestural Line(s)			2		
Angular Line(s)	2	2	1	1	3
One Line	1	1	3		1
Multiple Lines	1	1		1	2

Matrix A
Elements Used on Primary Display Panels
for Nutritional Message-Making *continued*

Crackers

Design Elements	Design Variables	Nutritional Message Components				
		Organic	Natural	Nutrient Claims	Featured Ingreds.	Certifications
Typography	Sans-serif	4	5	3	11	3
	Serif	4	4	4	8	
	Script Typeface					
	Upright Typeface	6	8	7	14	3
	Ornamental Typeface	2	1		5	
	Bold	3	2	2	8	3
	Light	1	4	2	4	
	Italic		3	1	3	
	Uppercase	6	4	4	8	3
	Lowercase	1	1			
Color	Green	6	2	1	4	3
	Monochromatic	3	5	3	9	
	Polychromatic	5	4	4	10	3
	Warm Color(s)	3	7	4	14	2
	Cool Color(s)	6	3	3	9	3
Shape	Rectangular	2	1	1	3	
	Circular	1			2	3
	Other	2	4	2	5	
Edge	Simple	5	5	3	9	3
	Complex				1	
Line	Thin	4	3	3	7	
	Heavy		1	1	2	3
	Gestural Line(s)				1	
	Angular Line(s)	4	4	4	8	3
	One Line	3	3	2	4	3
	Multiple Lines	1	1	2	5	

Chips

Nutritional Message Components				
Organic	Natural	Nutrient Claims	Featured Ingreds.	Certifications
1	4	3	10	2
3	4	1	4	
	2	1		
1	6	3	12	2
3	2		2	
1	6	2	7	2
		1		
2	5	2	8	2
2	2		3	
3		2	2	2
2	7	2	8	
2	2	2	6	2
1	3	2	7	2
3	1	2	4	2
	1		1	
1		1	1	2
1		2	1	
2	1	3	3	2
2	2	3	4	
				2
2	2	3	4	2
	1	2	2	2
2	1	2	2	

Matrix A

Elements Used on Primary Display Panels
for Nutritional Message-Making *continued*

Cookies

Design Elements	Design Variables	Nutritional Message Components				
		Organic	Natural	Nutrient Claims	Featured Ingreds.	Certifications
Typography	Sans-serif	4	3	3	5	4
	Serif	2	3	1	7	
	Script Typeface					
	Upright Typeface	5	5	4	10	4
	Ornamental Typeface	1	1		1	
	Bold	5	3	3	5	4
	Light		1		1	
	Italic		2		1	
	Uppercase	5	3	1	6	4
	Lowercase	1				
Color	Green	1		1		3
	Monochromatic	3	6	1	8	1
	Polychromatic	3		3	5	3
	Warm Color(s)	2	2	2	7	3
	Cool Color(s)	2	1	1		3
Shape	Rectangular				1	
	Circular			1	2	4
	Other	2	1	3	2	
Edge	Simple	2	1	2	3	4
	Complex			2	2	
Line	Thin	2	1	2	5	
	Heavy	1		1	1	4
	Gestural Line(s)		1	1	2	
	Angular Line(s)	3		2	4	4
	One Line	2	1	2	4	4
	Multiple Lines	1		1	2	

Yogurt

Design Variables	Nutritional Message Components				
	Organic	Natural	Nutrient Claims	Featured Ingreds.	Certifications
Sans-serif	5	4	13	15	1
Serif	3	1	1	2	
Script Typeface					
Upright Typeface	8	5	14	17	1
Ornamental Typeface					
Bold	4	4	7	2	1
Light				3	
Italic	2		4	2	
Uppercase	6	4	5	11	1
Lowercase			4		
Green					
Monochromatic	5	3	9	11	1
Polychromatic	3	2	5	5	
Warm Color(s)	5	2	2	3	
Cool Color(s)	4	4	4	8	
Rectangular			2	2	
Circular				1	1
Other	3	2	2	3	
Simple	3	2	4	5	1
Complex				1	
Thin	2		1	1	
Heavy	1		3	3	1
Gestural Line(s)					
Angular Line(s)	3		4	4	1
One Line	2		3	3	
Multiple Lines	1		1	1	

Matrix A
Elements Used on Primary Display Panels
for Nutritional Message-Making *continued*

Frozen Dinners

Design Elements	Design Variables	Nutritional Message Components				
		Organic	Natural	Nutrient Claims	Featured Ingreds.	Certifications
Typography	Sans-serif	4	1	9	10	4
	Serif	4	3		4	
	Script Typeface	2			2	
	Upright Typeface	6	4	9	13	4
	Ornamental Typeface					
	Bold	2		3	4	3
	Light	1			1	
	Italic			1	1	
	Uppercase	6	4	1	9	4
	Lowercase			2	1	
Color	Green		3	5	4	3
	Monochromatic	6		2	9	
	Polychromatic	2		7	5	4
	Warm Color(s)	2		7	5	4
	Cool Color(s)		3	7	6	3
Shape	Rectangular			3	3	
	Circular	1		3	2	4
	Other	1		1		
Edge	Simple	1		7	5	4
	Complex	1				
Line	Thin	1		2	3	1
	Heavy	1		3	1	3
	Gestural Line(s)			2		
	Angular Line(s)	2		3	4	4
	One Line			3		4
	Multiple Lines	2		2	4	

Matrix A Conclusions
Elements Used on Primary Display Panels
for Nutritional Message-Making

Overall, nutrient content claims (NCC) and featured ingredients were very common messages on the surveyed packages. It seems that NCC were only dominant on the food products that tend to be healthier, such as cereals, yogurt, and frozen dinners. The less healthy categories (crackers, chips, and cookies) had large numbers of featured ingredients. Since nutrient content claims are based on the Nutrition Facts panel, it may be more difficult for the less healthy products to show a NCC because they are less likely to be reduced fat, low sodium, or high fiber. Featured ingredients can describe any ingredient in the ingredients list, and less healthy products are more likely to show them because there is usually at least one desirable ingredient they can pick to display.

Cereals

Matrix A revealed a large number of both nutrient content claims and featured ingredients for the cereals. The NCC were typically printed in a bold sans-serif upright typeface in multiple cool colors. They also tended to appear inside shapes (usually banners) with simple edges. The featured ingredients were also bold, sans-serif in an upright typeface, but they were more likely to be displayed in a warm color without any shape around them.

Granola Bars

The granola bar category did not show any major trends. However, there were a moderate number of NCC and featured ingredients in sans-serif upright typefaces.

Crackers

The crackers had a large number of featured ingredients, which appeared in bold sans-serif upright typefaces. They were commonly polychromatic with warm or cool colors, though warm colors were more dominant. These featured ingredients were surrounded by a variety of shapes, but almost all had simple edges.

Chips

Like the crackers, the products in this category had many featured ingredients, but the only dominant trend was a sans-serif upright typeface. Some were bold and uppercase, and were slightly more monochromatic than polychromatic. Warm colors were more prevalent than cool ones.

Cookies

Matrix A did not reveal many major trends for the cookies. Featured ingredients were the most common type of nutritional message component, and they were often shown in a serif, upright typeface. The colors were usually monochromatic and warm.

Yogurt

The yogurts showed a dominant trend for both NCC and featured ingredients. Many of the messages appeared in sans-serif upright typefaces and were monochromatic. Additionally, the text for the featured ingredients was typically in uppercase.

Frozen Dinners

Like the other food categories, the frozen dinners showed a high number of featured ingredients and NCC in sans-serif upright typefaces. Most of the featured ingredients were uppercase and monochromatic, whereas the NCC were polychromatic, displaying both warm and cool colors.

Matrix B
Principles Used on Primary Display Panels
for Nutritional Message-Making

This matrix is similar to Matrix A, which is shown in this section on pages 55–58. However, instead of looking at graphic design elements, it examines the principles of graphic design. These principles include hierarchy, scale, repetition, and position. Matrix B has the same horizontal axis as Matrix A since it is analyzing the same nutritional message components.

Matrix B

Principles Used on Primary Display Panels
for Nutritional Message-Making

Cereals

Design Elements	Design Variables	Organic	Natural	Nutrient Claims	Featured Ingreds.	Certifications
Hierarchy	Dominant Component	4	2	4	8	
	Secondary Component	2	3	9	12	2
Relative Size	Small	3	5	12	19	2
	Large	3		1	1	
Repetition	Two Times	2		3	2	
	Three or More Times	3				
Position	Top	3	2		4	
	Bottom				2	
	Middle	1	2	3	2	
	Right	1		1	1	
	Left			2	4	
	Top Right			5	2	
	Top Left		1		1	
	Bottom Right	1		1	1	
	Bottom Left			1	3	2

Granola Bars

Design Variables	Organic	Natural	Nutrient Claims	Featured Ingreds.	Certifications
Dominant Component	3		2	1	
Secondary Component	5	4	8	11	8
Small	6	4	8	12	8
Large	2		2		
Two Times	2	2			
Three or More Times					
Top	2				
Bottom	1	2			
Middle	2		1		1
Right					1
Left	1	2	3	3	
Top Right			2	4	
Top Left	2		1	2	
Bottom Right					1
Bottom Left			3	3	5

Crackers

Design Variables	Organic	Natural	Nutrient Claims	Featured Ingreds.	Certifications
Dominant Component		2	1	1	
Secondary Component	9	8	5	13	3
Small	9	10	6	14	3
Large					
Two Times	2	6	2	2	
Three or More Times	5				
Top	1	1	1		
Bottom	1	4	1	3	
Middle	2	2			
Right	2			2	2
Left	3				
Top Right				2	
Top Left		1	2	1	
Bottom Right		2		2	1
Bottom Left			2	4	

Matrix B

Principles Used on Primary Display Panels
for Nutritional Message-Making *continued*

		Chips					Cookies					Yogurt				
Design Elements	**Design Variables**	Organic	Natural	Nutrient Claims	Featured Ingreds.	Certifications	Organic	Natural	Nutrient Claims	Featured Ingreds.	Certifications	Organic	Natural	Nutrient Claims	Featured Ingreds.	Certifications
Hierarchy	Dominant Component	3	4	1	1	2	1	1	1	2	1	5	3	6	3	
	Secondary Component	1	5	3	13	1	5	4	3	10	3	5	2	13	16	1
Relative Size	Small	2	5	3	13	2	6	5	3	11	3	5	5	16	17	1
	Large	2	4	1	1	1			1	1	1	4		3	1	
Repetition	Two Times		2					1				6		4		
	Three or More Times													3		
Position	Top		1		1		3	1	2			3	1			
	Bottom		2		7		1	1		3		1		3	1	
	Middle	4	5	1			1	1		3		2	2	4	1	
	Right				1					1	1			1	1	
	Left			1			1	1	2	3		1		5	2	
	Top Right			1	3	2					1	2		1	7	
	Top Left				1	1							1	2	4	
	Bottom Right				1	1			1	1	1		1			
	Bottom Left			1				1			1			3	2	1

Matrix B

Principles Used on Primary Display Panels
for Nutritional Message-Making *continued*

Frozen Dinners

Design Elements	Design Variables	Nutritional Message Components				
		Organic	Natural	Nutrient Claims	Featured Ingreds.	Certifications
Hierarchy	Dominant Component	1		2	3	
	Secondary Component	8	5	5	8	4
Relative Size	Small	7	5	7	11	4
	Large	1				
Repetition	Two Times					
	Three or More Times	4				
Position	Top	1	1			
	Bottom					
	Middle	3				
	Right	1			1	
	Left			1	2	
	Top Right			1	3	
	Top Left	1	4	1		
	Bottom Right			3	4	4
	Bottom Left	2		1	1	

Matrix B Conclusions
Principles Used on Primary Display Panels
for Nutritional Message-Making

Overall, the most common graphic design principle used across all food categories was repetition. The words *organic* and *natural* were often repeated two or three times for emphasis. Products that were certified organic often displayed the word once in large text and then smaller on the USDA Organic certification.

Cereals

The majority of the nutritional message components on the cereals were small, secondary components. However, over half of the featured ingredients appeared to be more dominant. Though their positions were spread over the primary display panel, a third of the nutrient content claims were in the top right corner of the boxes. This could be a popular place to put the claims because English-speakers read left to right and their attention may pause on the right side of the box.

Granola Bars

The granola bars also had a large number of small, secondary NCC and featured ingredients, and they had a large number of certifications. All of the organic granola bars were certified organic and had the USDA Organic symbol on their packages. There were also certifications for whole grain, Chef's Best Taste, and the Best Life Diet.

Crackers

The cracker category revealed high numbers of the words *organic* and *natural*, and featured ingredients as secondary components on packaging. They were mostly small components, but the high number of both *organic* and *natural* claims indicates that the packages displaying these words used them more than once. Indeed, two packages repeated the word *organic* three or more times, and three packages repeated *natural* twice. Doing this obviously emphasizes the message and makes it more likely that shoppers will see it at least once.

Chips

The featured ingredients on these products were almost all secondary components and small in size. About half of them were positioned on the lower portion of the primary display panels.

Cookies

The cookie category also had high numbers of featured ingredients that were secondary and small in size.

Yogurt

Though the majority of the NCC and featured ingredients on yogurt packaging were small and secondary, there were a considerable number of the NCC that were dominant components. This is because many packages had the words *low fat* or *fat free* placed prominently on the front. Likewise, some of these claims were repeated two or three times, once in the center of the packaging, and again on the side or bottom. The word *organic* was also repeated twice on many packages, once as a dominant component and once as a secondary one.

Frozen Dinners

Organic claims, NCC, and featured ingredients were typically small and secondary on these packages. In some instances, the organic claims were repeated several times per package.

Matrix C

Physical Package Structure in Comparison
to Nutritional Message-Making

Matrix C also has the same horizontal axis as A and B, but analyzes the relationship between the nutritional messages and the physical package structure. Each package's three-dimensional construction can be described by variables such as texture, material, and transparency.

Though this matrix juxtaposes dissimilar two-dimensional and three-dimensional variables, it may be possible to see if there is any connection between certain nutritional message components and the physical shape of the package. Since package structure can be such a powerful way to distinguish a product from its competition (please see Precedent 6, page 17), it is worth exploring these potential connections in greater detail.

Matrix C

Physical Package Structure in Comparison
to Nutritional Message-Making

Cereals   Granola Bars

Physical Elements	Package Variables	Organic	Natural	Nutrient Claims	Featured Ingreds.	Certifications	Organic	Natural	Nutrient Claims	Featured Ingreds.	Certifications
Overall Shape	Rectangular	6	4	14	19	5	6	6	10	13	8
	Cylindrical										
	Bag		1								
	Other										
Physical Surface	Coated	6	5	14	19	5	6	6	10	13	8
	Uncoated										
Material	Paperboard	6	4	14	19	5	6	6	10	13	8
	Rigid Plastic										
	Flexible Plastic		1								
	Glass										
	Metal										
Visible Intrinsic Container Color	None	6	5	14	19	5	6	6	10	13	8
	Neutral Color										
	Warm Color										
	Cool Color										
	Metallic Color										
	Neon Color										
Finishing	Embossing										
	Hologram(s)										
	Physical Texture										
	Die-cutting										
	Other		1								
Transparency	Transparent										
	Semi-transparent										
	Opaque	6	4	14	19	5	6	6	10	13	8
	Transparent Window		1								

Matrix C

Physical Package Structure in Comparison
to Nutritional Message-Making *continued*

Crackers / Chips

Physical Elements	Package Variables	Crackers: Organic	Natural	Nutrient Claims	Featured Ingreds.	Certifications	Chips: Organic	Natural	Nutrient Claims	Featured Ingreds.	Certifications
Overall Shape	Rectangular	10	7	6	14	3					
	Cylindrical										
	Bag		2	1	2		4	9	3	15	3
	Other										
Physical Surface	Coated	10	9	7	13	3	4	9	3	15	3
	Uncoated				2						
Material	Paperboard	10	9	7	14	3					
	Rigid Plastic										
	Flexible Plastic		3	2	1		4	9	3	15	3
	Glass										
	Metal										
Visible Intrinsic Container Color	None	10	9	7	14	3	4	9	3	15	3
	Neutral Color				2						
	Warm Color										
	Cool Color										
	Metallic Color										
	Neon Color										
Finishing	Embossing										
	Hologram(s)										
	Physical Texture										
	Die-cutting										
	Other										
Transparency	Transparent										
	Semi-transparent										
	Opaque	10	8	6	15	3	2	7	2	12	2
	Transparent Window		1	1	1		2	2	1	3	1

Matrix C
Physical Package Structure in Comparison to Nutritional Message-Making *continued*

Cookies   Yogurt

Physical Elements	Package Variables	Cookies — Nutritional Message Components						Yogurt — Nutritional Message Components				
		Organic	Natural	Nutrient Claims	Featured Ingreds.	Certifications	None	Organic	Natural	Nutrient Claims	Featured Ingreds.	Certifications
Overall Shape	Rectangular	4	3	3	8	4	3					
	Cylindrical							8	5	18	17	1
	Bag	2	2	1	4							
	Other											
Physical Surface	Coated	5	5	4	11	3	3					
	Uncoated	1				1		8	5	18	17	1
Material	Paperboard	4	4	3	9	4						
	Rigid Plastic							8	5	18	17	1
	Flexible Plastic	2	1	1	2		3					
	Glass											
	Metal											
Visible Intrinsic Container Color	None	5	4	4	10	3	3					
	Neutral Color	1	1		1	1		8	5	18	17	1
	Warm Color											
	Cool Color											
	Metallic Color											
	Neon Color											
Finishing	Embossing											
	Hologram(s)											
	Physical Texture											
	Die-cutting		2		3							
	Other											
Transparency	Transparent											
	Semi-transparent											
	Opaque	6	3	4	8	4	1	8	5	18	17	1
	Transparent Window		2		3		2					

Matrix C

Physical Package Structure in Comparison
to Nutritional Message-Making *continued*

Frozen Dinners

Physical Elements	Package Variables	Nutritional Message Components				
		Organic	Natural	Nutrient Claims	Featured Ingreds.	Certifications
Overall Shape	Rectangular	8	5	7	12	5
	Cylindrical					
	Bag					
	Other					
Physical Surface	Coated	8	5	7	12	5
	Uncoated					
Material	Paperboard	8	4	7	11	5
	Rigid Plastic	1				1
	Flexible Plastic		1		1	
	Glass					
	Metal					
Visible Intrinsic Container Color	None	8	5	7	12	5
	Neutral Color	1				1
	Warm Color					
	Cool Color					
	Metallic Color					
	Neon Color					
Finishing	Embossing					
	Hologram(s)					
	Physical Texture					
	Die-cutting	1				1
	Other					
Transparency	Transparent					
	Semi-transparent					
	Opaque	8	8	7	12	5
	Transparent Window					

Matrix C Conclusions
Physical Package Structure in Comparison
to Nutritional Message-Making

The structure of the packaging tended to be the same within each of the food categories. This is likely because competing brands tend to imitate each other (Meyers and Gerstman 51–52). Also, according to Herbert Meyers and Richard Gerstman in their book *The Visionary Package*, marketers believe it is too costly to change the structure of a package. As a result, packaging's three-dimensional form is slow to innovate. Thus, since tall, rectangular boxes have been sufficiently holding cereals for years, marketers have little motivation to change their form. Despite this, Meyers and Gerstman argue that structure is one of the most recognizable parts of a package, and many brands can be instantly identified by their shapes, which should encourage companies to investigate new forms (96).

Cereals and Granola Bars

Matrix C showed that all of the granola bar products and all but one of the cereals were contained in rectangular, opaque, coated paperboard boxes with no intrinsic color. One of the natural cereals (Udi's Natural Artisan Granola) was in a flexible plastic bag with a transparent window to view the product. This package also had spot varnishes on some of the text and imagery, which distinguished it from other granolas on the shelf.

Crackers and Chips

Most of the crackers were also in rectangular, opaque paper boxes, but a few were contained in bags made of plastic or paper. The chips packages had no diversity in their form, and all were marketed in flexible plastic bags without an intrinsic color. Though the majority of the bags were opaque, several did have transparent windows.

Cookies

The cookie category had the most diversity out of the seven food categories. Because a few of the products did not have any nutritional messages on their packaging, a "None" column was added to this matrix so that the full range of product shapes could be seen regardless of nutritional messages. Though most products were in rectangular, paperboard boxes, there were also several products contained in flexible plastic packaging, both rectangular and bag form. One of the sampled packages (Crummy Brothers Organic Chocolate Chip Cookies) was made of an uncoated, neutral-colored paperboard, which was the sole uncoated package. Several packages used a transparent window to show their products, and one had a die-cut window.

Yogurt

The yogurt packaging was the same across all products. Cylindrical containers formed from neutral-colored (usually white or beige) opaque rigid plastic were the common choice.

Frozen Dinners

The frozen dinners were usually contained in rectangular, coated paper boxes without any visible product. One package was made of flexible plastic, and one was partially made of rigid plastic with a die-cut paperboard cover.

Matrix D
Visual Hierarchy of Primary Display Panels

This matrix has a narrower focus than the previous three. It examines the hierarchy of components on the primary display panels of food packages. Each component (i.e. product image, product name, health claims, etc.) will be classified as either dominant or secondary. This matrix allows for the comparison of multiple food categories on a single page. Each category is listed along the left side.

Though Matrix B analyzed the hierarchy of several nutritional message components such as nutrient content claims and featured ingredients, this matrix expands the analysis to include pertinent imagery and product names. Visual hierarchy is one of the most effective ways to call attention to content because it increases the visibility of featured information and increases the likelihood that consumers will see it. It will be valuable to see if there are certain variables that are consistently featured as dominant. Knowing this will contribute to the development of educational materials in the Ideation section (page 84).

Matrix D

Visual Hierarchy of Primary Display Panels

Food Category	Hierarchy	Product Image	Brand Name	Product Name	Nutrient Claims	Featured Ingreds.	Certifications	Cartoon Characters	Illustrations	Other Food Imagery	Other	Solid Color	Gradient
Cereals	Dominant Component	13	8	14	2	10	1	3	2		3	6	2
	Secondary Component	2	6	1	11	10	3			1	1	2	5
Granola Bars	Dominant Component	14	13	15	2	1	1	1	2	5	1	1	2
	Secondary Component	1	2		8	9	6		5	4	1	9	3
Crackers	Dominant Component	11	9	15	1			2	3		1	5	2
	Secondary Component	4	6		6	17	3	2	4	3		6	2
Chips	Dominant Component	7	13	14	1	2	1	4		3	2	11	2
	Secondary Component	4	2	1	3	12	2	1	2	2		2	
Cookies	Dominant Component	10	7	12	1		1	5	6	2	1	4	4
	Secondary Component	4	9	3	3	11	3		1	1		7	
Yogurt	Dominant Component		14	14	6	1		5	5	7	6	2	2
	Secondary Component				13	16	1		2	2	1	10	1
Frozen Dinners	Dominant Component	15	14	14	2	4		1	1			2	1
	Secondary Component		1	1	6	9	4	1		3	3	7	3

Package Components — Other Imagery: — Background:

Matrix D Conclusions
Visual Hierarchy of Primary Display Panels

As might be expected, the product image, brand name, and product name were usually dominant components across all seven categories. These recognition elements are most important for the consumer to be able to recognize the brand and see what sort of product they are examining. For the most part, featured ingredients and nutrient content claims were secondary components, but in some instances they were dominant components.

This dominance demonstrates an easy way for marketers to highlight certain information about their product. Although the use of nutrient content claims on a package is regulated and marketers can't show ingredients that aren't part of the product (for the featured ingredients), the government does not regulate *how* these components can be displayed. As a result, a package can show the words *low fat* in huge letters across its primary display panel to draw consumer attention and conceal the fact that the product has other unhealthy components. This *passive deception* is very common and can make the messages seem misleading. Since research has shown that consumers spend two-thirds of their time looking at the nonverbal elements of a package, these unregulated variables hold considerable power (Bayer).

Cereals

The dominant components in the cereal category were the product image and product name. Brand names and featured ingredients were split between dominant and secondary components. Nutrient content claims, however, were almost entirely secondary. Particularly on the conventional packages, the NCC were grouped together in a small shape in a corner of the packaging. One or more featured ingredients were often displayed quite large in the middle of the package, such as *Made with Whole Grain*. Though cartoon characters and other illustrations weren't very common, when they did occur, they also were dominant components. This was particularly the case with cereals targeted toward children, such as General Mills' Cocoa Puffs with its cuckoo bird, or Kellogg's Rice Krispies with its Snap, Crackle, and Pop. The dominant cartoon characters attract the interest of children and may increase sales.

Granola Bars

The brand name, product name, and product image were dominant on the granola bar packages. All the nutritional message components were secondary, however. Several products used imagery on their packages. Illustrations and other food imagery was most common. Often, the other food imagery showed ingredients that are a part of the granola bars. For example, the Simple Harvest bars has an apple slice, a cranberry, and two cinnamon sticks at the bottom of its package.

Crackers

As expected, the product image, brand name, and product name were dominant components. There were also a considerable number of packages that displayed the brand name as secondary. In these cases, the overall brand (i.e. Pepperidge Farm) may not be nearly as recognizable as the product name (Goldfish). This category had a large number of featured ingredients, and they were all secondary. Since crackers are not usually a health food, many may not have been able to display a nutrient content claim, so the manufacturers chose to highlight one or more special ingredients to compensate for this.

Chips

This category had the same three dominant components as the crackers on page 75. A main difference was the high number of dominant solid color backgrounds. Many chip packages were predominantly dark blue, orange, or green, and these vivid colors have the potential to attract a lot of attention

Cookies

The cookies' brand names were also split between dominant and secondary components, presumably for the same reason discussed above for the chips. These packages also did not have many nutrient content claims, but all eleven featured ingredients were secondary. Several products used illustrations to enhance their packaging.

Yogurt

Yogurt was the only category where none of the packages showed an image of the inside product. Yogurt is a difficult product to photograph and illustrate since the light color and smooth texture could be unrecognizable. Also, the appearance of the actual food may not be consistent across the individual packages of the same product, so the containers are usually opaque. To make up for this, most containers used other food imagery as a dominant component. Typically, these were images to represent the product's flavor (such as an image of two strawberries for a strawberry-flavored yogurt). This category had a large number of featured ingredients and nutrient content claims, but they were all secondary in terms of their visual hierarchy within the larger composition.

Frozen Dinners

The frozen dinner packages all had product images as their dominant components, and these packages usually featured lush photographs of each complete meal. Frozen meals do not usually look very attractive unless they have been cooked, so none of the packages revealed the actual uncooked product in a photograph or through a transparent window. This category did not have many claims, but the featured ingredients were usually secondary.

Matrix E

Representative Comparison of Package Design
Across Organic, Natural, and Conventional Product Categories

Matrix E compares organic, natural, and conventional package examples across a specific food category. For example, for the food category of Cereal, organic cereal, natural cereal, and conventional cereal package designs are analyzed side-by-side to see similarities and differences between them. The column on the far right discusses the significance of these observations and draws conclusions about trends in organic, natural, and conventional food packaging.

When selecting representative products, an attempt to compare similar products (i.e. organic, natural, and conventional cheese pizzas) was made, though this was not always possible. Furthermore, because this matrix only looks at one product within each classification, additional comparisons of more organic, natural, and conventional products would need to be made in order to make more definite conclusions.

Matrix E

Representative Comparison of Package Design
Across Organic, Natural, and Conventional Product Categories

Cereals

Representative Product	Product Image	Product Similarities	Product Differences	Significance
Organic Cascadian Farm Purely O's		• Large bowls of cereal • Large product names for Perky's and Cheerios; large brand name for Cascadian • Use of light yellow • Central axis positioning	• Cleanest, most elegant design • Generous white space • No package claims	• All show bowls of cereal, but Cascadian Farm has the most simple and clean design. The lack of claims conveys elegance because it is so different from other packages that are commonly seen in stores. • *Made with whole grain* is a common claim, and it is featured on the natural and conventional products. Cascadian also mentions whole grain in its product description, but doesn't place as much emphasis on it. • Because Cheerios is the original oat cereal and it has an established color palette and product logo, it can afford to interrupt the design with the free book.
Nutrient Claims	• None			
Featured Ingreds.	• None			
Natural Perky's Perky O's			• Most complex design • Striped background • Unique, dynamic logo for product name	
Nutrient Claims	• 3g Fiber • Vitamin Fortified • Only 2g Sugar!			
Featured Ingreds.	• Excellent Source of Whole Grain • Gluten & Nut FREE			
Conventional General Mills Cheerios			• Front panel design is interrupted by free book promotion • Detailed Nutrition Highlights give overview of daily values for certain nutrients	
Nutrient Claims	• Nutrition Highlights			
Featured Ingreds.	• With Whole Grain Guaranteed			

Matrix E

Representative Comparison of Package Design
Across Organic, Natural, and Conventional Product Categories *continued*

Granola Bars

Representative Product	Product Image	Product Similarities	Product Differences	Significance
Organic Save the Forest Organic Trail Mix Bars		• Warm color palette • Photograph of granola bar • Similar-sized product logo • Simple Harvest and Fiber One have the word *NEW!* in the upper left	• Forest scene with active person	• These packages are very different, with diverse design decisions such as background imagery, logo design, and number of claims. • People are likely to notice the word *new* on the natural and conventional packages because they typically start reading in the upper left corner. • Since Fiber One uses the word *fiber* in its product name, it further reinforces the fact that its granola bars have a high fiber content.
Nutrient Claims	• None			
Featured Ingreds.	• None			
Natural Quaker Simple Harvest Cinnamon Sugar			• Images of ingredients included in the granola bars	
Nutrient Claims	• None			
Featured Ingreds.	• Oat, wheat, barley			
Conventional General Mills Fiber One Oats & Caramel			• The brand name (Fiber One) relates to the fiber nutrient content claim	
Nutrient Claims	• 35% of the Daily Value of Fiber			
Featured Ingreds.	• None			

Matrix E

Representative Comparison of Package Design
Across Organic, Natural, and Conventional Product Categories *continued*

Crackers

Representative Product	Product Image	Product Similarities	Product Differences	Significance
Organic Annie's Cheddar Bunnies		• Use of yellow-orange color • Similar cracker shapes • Central axis positioning • Cartoon animal on Annie's and Goldfish packages	• Unique language to convey lack of artificial ingredients • Playful typeface and layout • Most colorful package	• Yellow-orange references the cheddar flavor of the crackers. • Annie's playful layout and colors and the large cartoon on the Goldfish package appeal to children. The more serious design of the Guppies may attract older consumers. • All packages make some sort of healthy claim, presumably because all the crackers have been processed and may not be the most nutritious option, and marketers would rather have consumers focus on the positive aspects of the products.
Nutrient Claims	• None			
Featured Ingreds.	• No icky additives or pesky preservatives! • Made with REAL organic cheddar!			
Natural Good Health Cheddar Guppies			• Most sophisticated, subdued design	
Nutrient Claims	• 50% LESS FAT			
Featured Ingreds.	• None			
Conventional Pepperidge Farm Goldfish Cheddar			• Cartoon goldfish is a dominant component	
Nutrient Claims	• None			
Featured Ingreds.	• Baked with real cheese • No artificial ingredients • 0g trans fat			

Matrix E

Representative Comparison of Package Design
Across Organic, Natural, and Conventional Product Categories *continued*

Chips

Representative Product	Product Image	Product Similarities	Product Differences	Significance
Organic Snikiddy Mac n' Cheese Puffs		• Bright colors, including yellow-orange • Cluttered designs with many elements competing for attention • Large product names • Central axis positioning • Dynamic product names for Crunchitos and Cheetos		• Bright colors and cartoon characters appeal to children. • Yellow-orange reflects color of products. • Crunchitos and Cheetos' dynamic logos imply movement, which may echo the crunching action of chewing their product and the fact that cheese puffs are often an on-the-go snack. • The mention of *real cheese* on the Cheetos package may make viewers wonder if *fake* cheese exists, and if similar products have it.
Nutrient Claims	• None			
Featured Ingreds.	• No trans fats, wheat-free, no hydrogenated oils, no GMOs, no corn syrup			
Natural Little Bear Crunchitos Extra Cheddar			• Transparent window allows view of actual product	
Nutrient Claims	• 33% LESS FAT			
Featured Ingreds.	• Made with all natural ingredients			
Conventional Cheetos Crunchy			• *Real cheese* mentioned as a featured ingredient	
Nutrient Claims	None			
Featured Ingreds.	0 grams trans fat. Made with real cheese!			

Cookies

Representative Product	Product Image	Product Similarities	Product Differences	Significance
Organic Newman's Own Champion Chip Cookies		• Use of illustrated graphics/cartoons • Newman's and Kashi show a single large cookie	• Flexible plastic bag • Photograph of company's founder	• Each package has a different structure, representing the range of structures commonly used for cookies. • The organic and natural products may focus more on health so that their products are seen as a more acceptable treat. • Chips Ahoy's bright red background, eye-catching product name, and cartoon cookie attracts attention and appeals to kids. This package resembles many other conventional cookie packages. • Chips Ahoy doesn't have any package claims, and doesn't reference health. Its package design focuses more on fun and taste instead.
Nutrient Claims	• None			
Featured Ingreds.	• Made with organic flour and organic sugar			
Natural Kashi TLC Oatmeal Dark Chocolate			• Narrow, vertical paperboard package • Most nutritional claims	
Nutrient Claims	• 3g fiber			
Featured Ingreds.	• 7 whole grains • No hydrogenated oils, zero grams trans fat			
Conventional Nabisco Chips Ahoy! Chewy			• Plastic sleeve encasing rigid plastic trays • Bright red background • Large logo is a dominant component • No nutritional claims	
Nutrient Claims	• None			
Featured Ingreds.	• None			

Yogurt

Representative Product	Product Image	Product Similarities	Product Differences	Significance
Organic Stonyfield Farm Organic Lowfat Strawberry		• Rigid plastic containers • Lack of product image • Illustrated graphics to show flavor (strawberries and maple leaves) • Neutral backgrounds • Stonyfield and Yoplait emphasize their lowfat products		• All three designs are fairly similar, which indicates that marketers are concerned about product competition. • Multiple illustrated graphics and bright colors compensate for the lack of a product image. • Fat content is of obvious concern to Stonyfield and Yoplait, since they mention it more than once.
Nutrient Claims	• Lowfat • Lowfat yogurt • Vitamin D added			
Featured Ingreds.	• None			
Natural Brown Cow Maple Cream Top		• Use of wavy text • Central axis positioning		
Nutrient Claims	• None			
Featured Ingreds.	• No artificial growth hormones			
Conventional Yoplait Original 99% Fat Free Strawberry			• Taller, more vertical container	
Nutrient Claims	• 99% fat free • Lowfat yogurt • Vitamins A and D added • 20% daily calcium and Vitamin D			
Featured Ingreds.	• None			

Matrix E

Representative Comparison of Package Design
Across Organic, Natural, and Conventional Product Categories *continued*

Frozen Dinners

Representative Product	Product Image	Product Similarities	Product Differences	Significance
Organic Amy's Cheese Pizza		• Warm color palette • Large product image • Thin, square paperboard packages	• Background features flowers, herbs, and canvas cloth	• The warm colors reinforce the idea of hot pizza with melted cheese, even though the product is frozen. • The Amy's package background conveys a homey feeling. • Kashi's white background puts focus on pizza image and product information. • Tony's has a complex design with many elements, but the bright orange color and variable text orientation is eye-catching
Nutrient Claims	• None			
Featured Ingreds.	• Made with organic tomatoes and flour • No GMOs			
Natural Kashi Five Cheese Tomato Pizza			• Neutral background	
Nutrient Claims	• 14g protein, 4g fiber			
Featured Ingreds.	• 200mg ALA–an Omega-3			
Conventional Tony's Original Four Cheese Pizza			• Elaborately designed NCC with cartoon children • Part of the package is used to advertise a car promotion • Bright orange color	
Nutrient Claims	• Good source of protein • Good source of calcium • Good source of iron			
Featured Ingreds.	• None			

Food Package Claims

Following the research portion of this study, several conclusions can be drawn about the types of nutritional message components that appear on food packages and how the public responds to these messages. Some of the package claims are strictly regulated by the U.S. government. The use of the word *organic* is one example. The USDA has four levels to determine how organic a product is, and there are requirements a product must meet in order to qualify for each level. Furthermore, *100% organic, organic, made with organic ingredients*, and the USDA Organic symbol can only be used in conjunction with these requirements. Fines of up to $1,000 can be incurred if a manufacturer violates these rules. The three types of claims explained in the Research section (please see pages 30–31) are also highly regulated. The Food and Drug Administration examines the most current scientific studies to make sure these claims are truthful before they are approved for use.

Unlike the claims above, the use of *natural* is not controlled by the government, despite its presence on many types of products. The only instances in which this word is restricted is in regards to natural flavors and natural meat and poultry products. Research has also shown that there is confusion over the word *natural*, and consumers often equate it with healthfulness or organic products, neither of which is always true. Featured ingredients are another area of food package design that do not have governmental restrictions, and can also be misleading.

As a result, there is an urgent need to educate the public on the significance of each type of claim so that people can make informed decisions about the products they buy. This is the main goal of the applications discussed in the Ideation section, beginning on page 84.

Most Regulated Claims
   Organic
   Health Claims
   Nutrient Content Claims
   Structure/Function Claims
   Featured Ingredients
   Natural
Least Regulated Claims

Nonverbal Package Components

As discussed in the conclusion section of Matrix D (pages 73–74), there are other nonverbal components of a food package that are unregulated and could potentially communicate misleading messages. When marketers use extremely large text, bold typefaces, or bright colors to liberally decorate nutritional messages, consumers may be fooled into thinking that a single large message such as *made with whole grain* or *no trans fats* means that the product as a whole is healthy. This subtle, nonverbal deception can be powerful because it may affect people on a subconscious level and influence their buying decisions without their conscious awareness. Another major goal of the applications is to emphasize that even if a product shows a claim (regulated or otherwise) it may not be a nutritious choice. Alternatively, reading the Nutrition Facts and ingredients statements are the best way to understand a product's entire nutritional make-up.

Ideation

The purpose of this section is to connect research findings and conclusions from Matrices A–E (pages 55–82) in useful ways that can be shared with a larger audience. All solutions described on the following pages share the goal of educating the public about nutritional message components on food packages. A range of preliminary ideas were generated and, following this initial exploration, several final applications were chosen to be fully developed and tested with a sample audience.

Potential Location for Design Applications: Grocery Store

Many people shop for their food in a grocery store, which makes this location ideal for the installation of educational messages about food products. Having the educational messages about products in the same place they are sold will allow consumers to more easily draw connections between these messages and what they see on the actual packages. The advantages of specific locations within a grocery store are discussed below.

In-Store Locations	Importance/Relevance
Entrance	The entrance to the grocery store could be a potential location for an educational design application. Everyone entering the store must pass through this area, and information would be available to shoppers before they examine any products or make purchase decisions. Information in the form of a pamphlet or booklet could be picked up and referenced throughout their time in the store.
Carts/Baskets	Many people travel around the grocery store with a cart or basket to hold the products they intend to buy. Attaching an informational message to carts and baskets could provide assistance to shoppers wherever they are in the store.
Aisles	Consumers make the vast majority of their purchase decisions while perusing the aisles of grocery stores. Having educational information readily available directly next to the products they are considering could help them make better choices.
Floor	The floor of the grocery store is usually devoid of advertising and other messages, which could make it a prime location for an unexpected educational message. Though some people may walk over the message without realizing its presence, a large eye-catching floor display could be a very effective surprise.
Checkout Area	People often spend several minutes or more waiting in line at the grocery store to pay for their purchases. This may be one of the only times where they are not consciously looking for something specific. Putting information about nutritional messages in this area would allow consumers time to read and understand it without many other products competing for their attention. Although it may not affect the choices they've already made, this kind of display may influence them to make different choices the next time they shop.
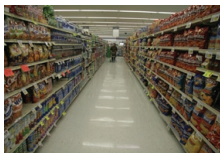
Final Location for Design Applications

Grocery Store Aisles and Endcaps

Justification

Although all the aforementioned locations are appropriate places to situate educational information, the aisles of the grocery store may be where it is most needed. Consumers spend the majority of their time walking up and down the aisles while shopping because of product location. They are more likely to notice an educational display that is positioned in a spot they might pass more than once. Since people typically only go through the grocery store's entrance once per visit, positioning a message here would immediately diminish the number of potential viewings they may have.

The center aisles are where stores usually place packaged goods including sodas, chips, cookies, and other snack foods (Nestle 305-306). Because these products are often heavily processed, they are more likely to be unhealthy than the fresh products (such as produce, meats, and dairy) that are usually located around the perimeter of stores (19). Having educational materials in these aisles and on their corresponding endcaps could influence and benefit consumers as they engage in their decision-making processes.

Goals

Because people are often rushed when shopping and they spend so little time looking at individual products or displays (the eye can register a product in one-sixteenth of a second (Bayer)), all design applications for this thesis study will use large visual components to attract their attention. Photographs and illustrations will play an important role in achieving this goal. The applications will also have more detailed information for viewers that have time to read it. However, the primary goal for all applications is to encourage clear understanding in a short amount of time.

Specific concepts focusing on a variety of content (such as natural, nutrient content claims, and organic) will be created for placement along various parts of the aisles and on the shelves of aisle endcaps. Following the initial ideation, one or more design applications will be chosen for full development and testing with a representative audience.

Application A
Aisle Gateway

Placing informational displays along the aisles of a grocery store could be very effective, due to their proximity to so many processed products. Grocery store aisles, however, present special challenges for designers due to space restrictions. The narrow width of the aisles and crowded shelves contribute to physically and visually tight spaces. A large gateway spanning the width of the aisle still allows adequate traffic flow, and the unexpected size would hopefully cause shoppers to pause and read the information.

Description

Educating the public about the lack of regulation on the word *natural* is extremely important, since *natural* can be found on almost any type of food product, even ones that have been heavily processed or altered from whatever form they may have originally had in nature. The sides of the gateway will show a listing of phrases that people may or may not associate with the word *natural*. Some of these, such as *no preservatives* and *locally grown,* seem more believable than *has preservatives* and *grown 500 miles away*. This application will be positioned at the beginning of a grocery store aisle, and be tall enough so that people can pass through it without obstruction. The large scale of this gateway will hopefully catch people's attention as they pass by.

Initial Concept

What does NATURAL mean to you?
- Fresh from the farm
- No preservatives
- Healthy
- Ingredients you can pronounce

NATURAL could be any of these things. Why? Because the word NATURAL on food packages is not regulated by the government.

Initial Ideation

Door panel detail

Information on the door panel is not visible until the viewer passes through the gateway.
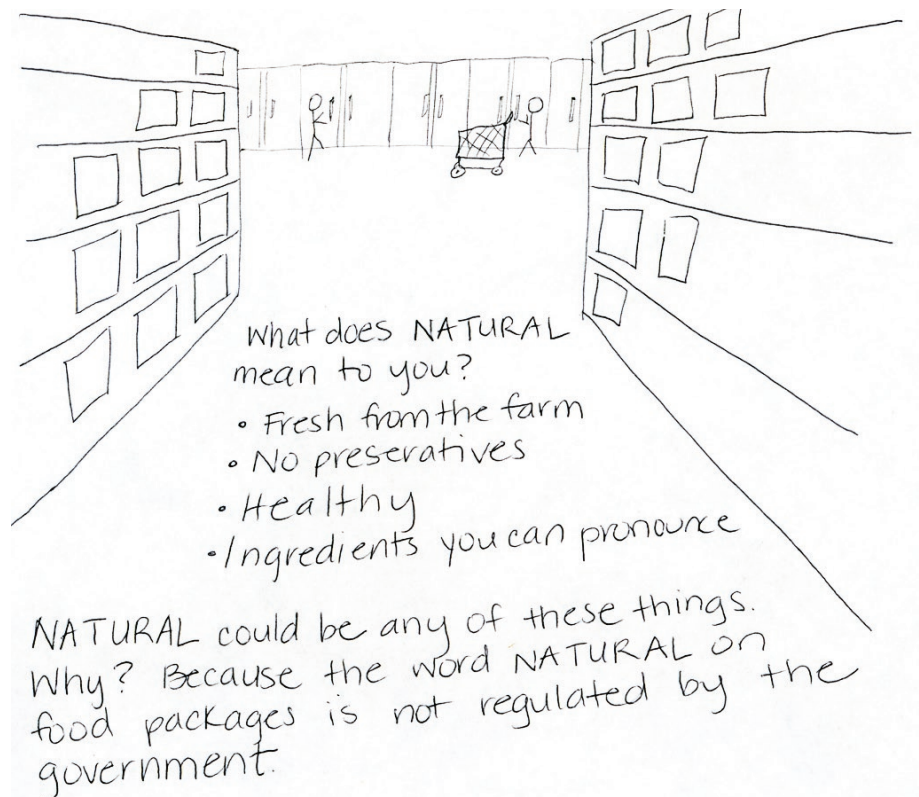
Application A
Aisle Gateway *continued*

Initial Ideation
(continued)

"NATURAL" can mean

Locally grown

Unhealthy

Farm fresh

Contains genetically modified ingredients (GMOs)

Recognizable ingredients

No genetically modified ingredients (GMOs)

Grown 500 miles away

Not so good for your heart

No preservatives

Freezer fresh

Good for your heart

Ingredients such as vegetable glycerin, gum arabic, and cultured glucose syrup solids

Healthy

Has preservatives

Why? Because the government **doesn't regulate** the word **"natural"** on food packages. Are you an educated consumer?

Bright color highlights words and phrases that can be labeled as natural *due to the lack of governmental regulation, even though most people wouldn't think of them as natural.*

Application B
Educational Banners

As discussed on page 87, grocery store aisles have very little space to accommodate educational displays. Small, vertically-oriented banners could be installed perpendicularly to the shelves to extend into the aisles and catch people's attention. A narrow width would ensure that they do not hinder traffic flow in the aisles.

Description

Similar to the Application A gateway on pages 87–89, the purpose of this application is to show consumers that the term *natural* can represent anything because it is unregulated. These banner sequences will present a progression of images, beginning with unprocessed whole foods such as fruits and vegetables, and ending with manufactured foods such as cheese puffs and candy. All of them, however, will be labeled as *natural*. A final banner will briefly explain the lack of regulation and encourage people to carefully investigate the foods they buy. Each banner would be placed one after another along particular grocery store aisles with the potential for being double-sided so that the messages could be seen regardless of which direction the consumer is approaching from.

Initial Concept

Application B

Educational Banners *continued*

Initial Ideation

Yup.

Turns out, the government doesn't regulate the use of the word natural on foods. So anything can be natural, really.

Better watch what you're buying.

Yup.

Turns out, the government doesn't regulate the use of the word natural on foods. So anything can be natural, really.

Better watch what you're buying.
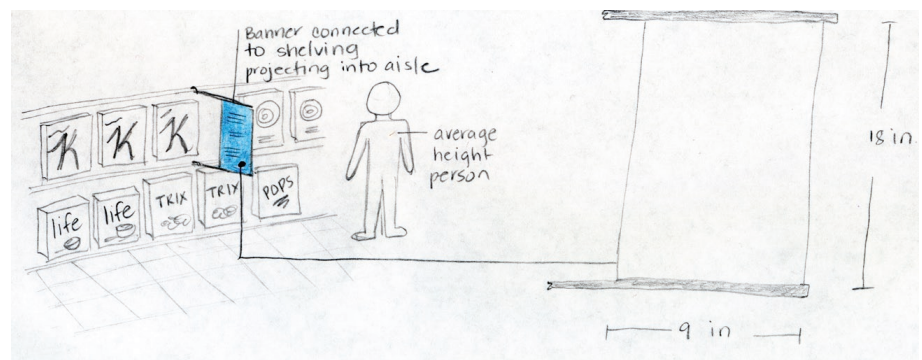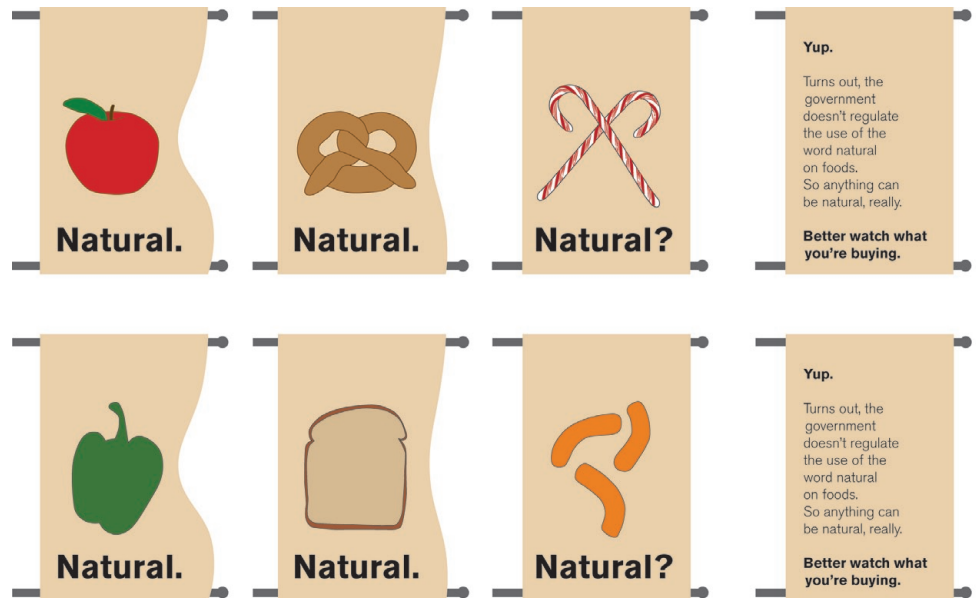
These banner systems include a left to right progression from least processed to most processed foods. The fourth banner explains that any food can be legally labeled as natural, *since there are minimal restrictions on this term.*

Yup.

Turns out, the government doesn't regulate the use of the word natural on foods. So anything can be natural, really.

Better watch what you're buying.

Yup.

Turns out, the government doesn't regulate the use of the word natural on foods. So anything can be natural, really.

Better watch what you're buying.
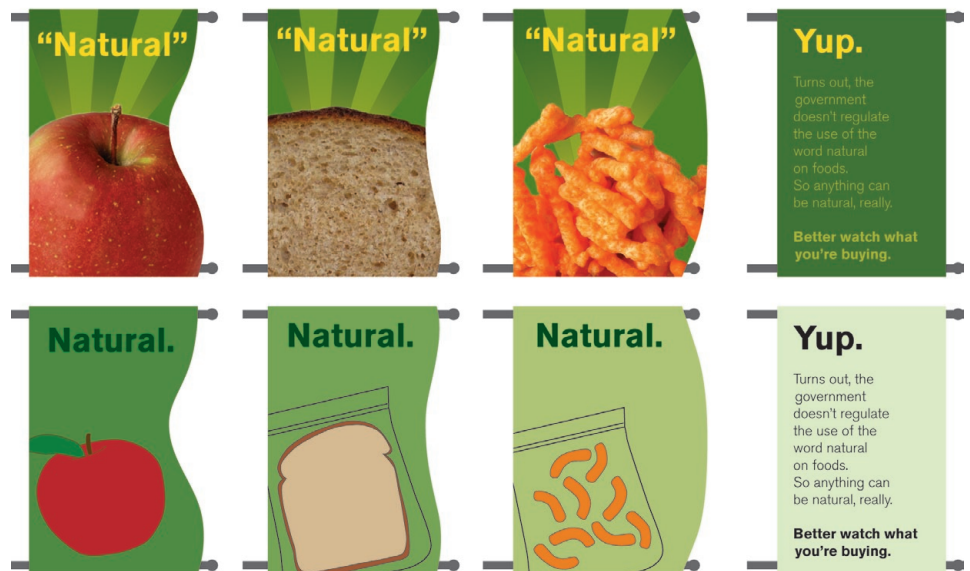
Cropped images lead to more dynamic compositions. The silhouettes of the banners change from concave to convex, mimicking the human form and showing a connection between body shape and diet.

Application B

Educational Banners *continued*

Initial Ideation
(continued)
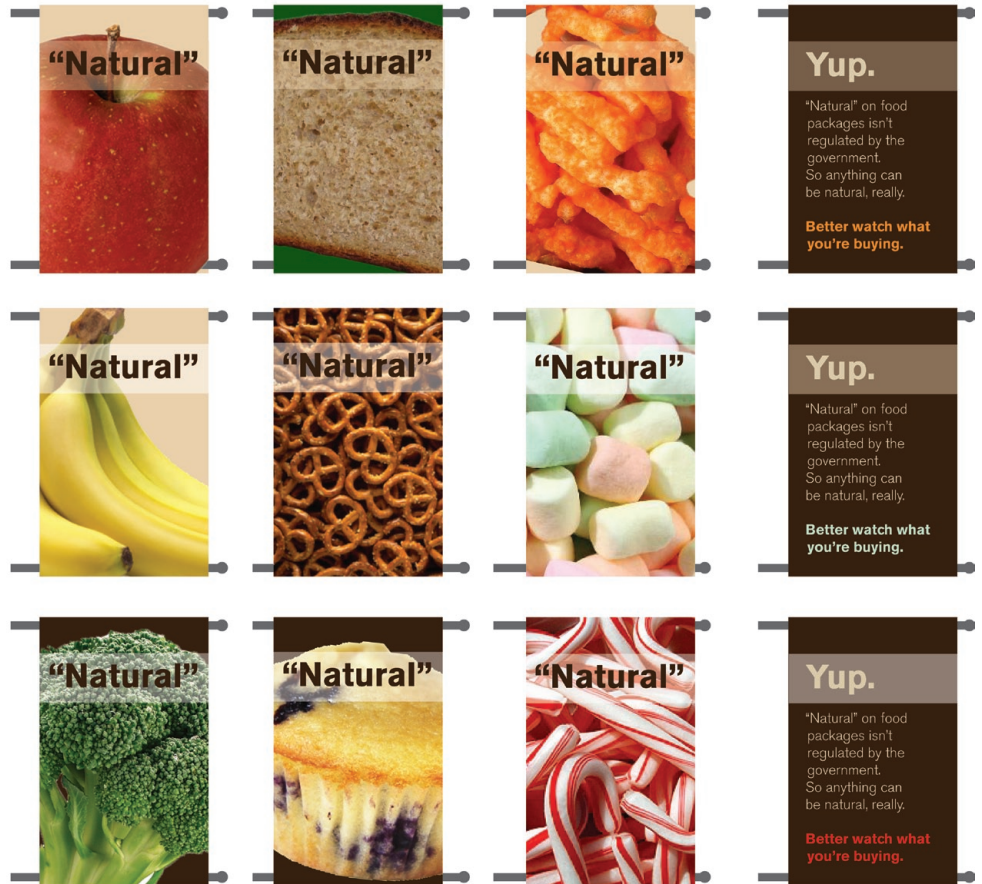
Use of photographic imagery allows consumers to more easily recognize products and provides greater visual impact.

Application C
Endcap Display/Natural Focus

A grocery store *endcap* is the shelving unit that is located at each end of an aisle and acts as a transition as people move from one aisle to the next. Because they are somewhat separated from the actual aisles and easily seen, these shelves offer prime real estate for food products. Though many stores have endcaps with shelves that are similar to the shelves of the interior aisles, some endcaps are specially made for a specific company or brand to market their products. These endcaps can include custom signs and graphics to attract consumer attention. Since they are highly visible, the endcaps make an excellent installation location for a design application.

Description

People often equate the word *natural* with healthy. Indeed, some natural products *are* healthy and may have less processed ingredients than conventional products. But since *natural* can mean anything, as discussed on pages 35–36, it is important to check the Nutrition Facts and ingredient lists on foods to see if these claims are true. This application will use butter, sugar, and salt to demonstrate that natural doesn't always mean healthy, since large amounts of these nature-made ingredients can be very detrimental to health. Positioning this application on an aisle endcap would hopefully catch people's attention as they move from one aisle to another.

Initial Concept
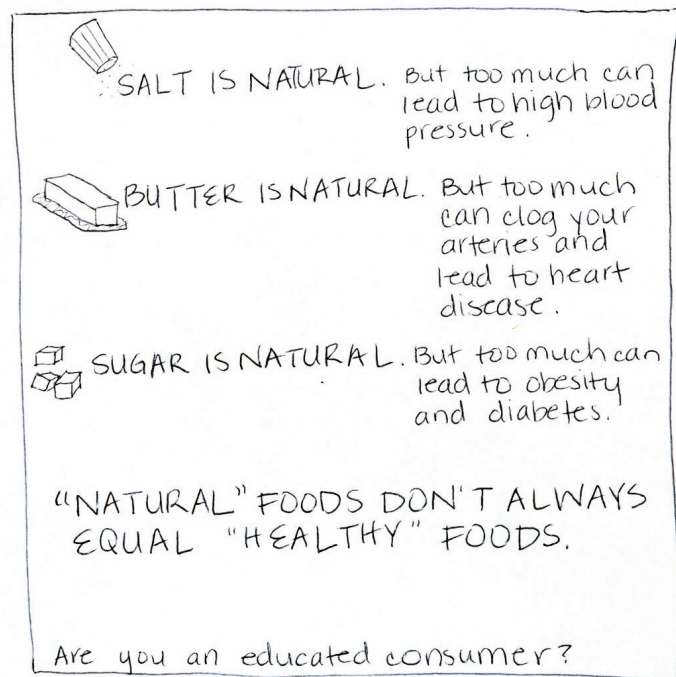
Initial Ideation

BUTTER IS NATURAL.
But too much can clog your arteries and lead
to heart disease.

SALT IS NATURAL.
But too much can lead to high blood pressure.

SUGAR IS NATURAL.
But too much can lead to obesity and diabetes.

**"NATURAL" FOODS DON'T ALWAYS
EQUAL "HEALTHY" FOODS.**

The word natural on food packages
is not regulated by the government.
Which means that any product can
be natural.

Are you an educated consumer?

*The wider top dimension of this display is intended to draw attention to the images and
bold text, emphasizing that natural foods are not necessarily healthy.*

Initial Ideation

(continued)

SUGAR

True, but too much sugar can lead to obesity and diabetes.

"Natural" doesn't always mean healthy, because the government doesn't regulate the word "natural" on food packages.

Which means anything can be natural, really. **Better watch what you're buying.**

SALT

True, but too much salt can lead to high blood pressure.

"Natural" doesn't always mean healthy, because the government doesn't regulate the word "natural" on food packages.

Which means anything can be natural, really. **Better watch what you're buying.**

BUTTER

True, but too much butter can clog your arteries and lead to heart disease.

"Natural" doesn't always mean healthy, because the government doesn't regulate the word "natural" on food packages.

Which means anything can be natural, really. **Better watch what you're buying.**
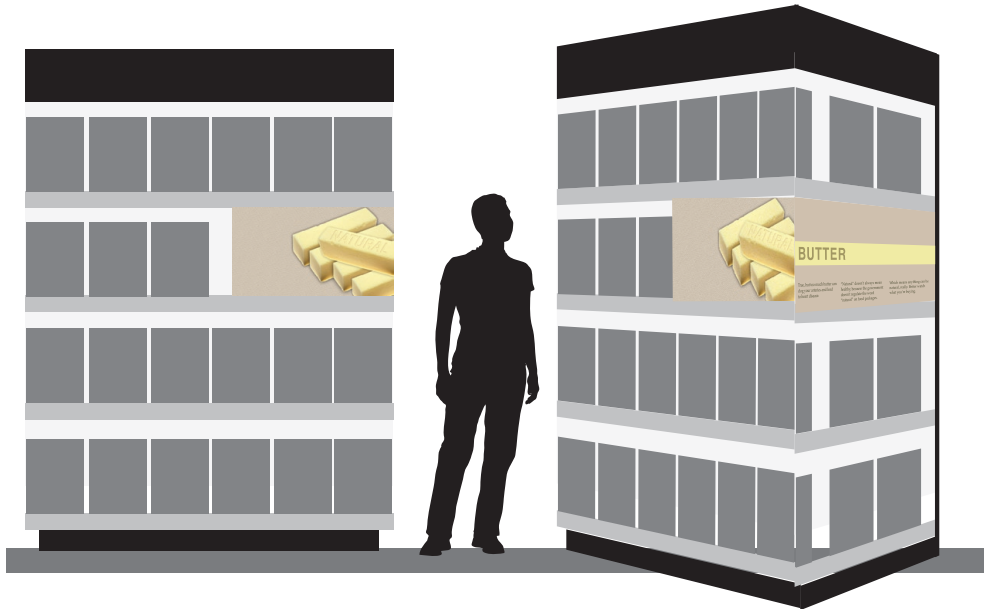
Endcap front view

Endcap perspective view

Application C
Endcap Display/Organic Focus

Description

Unlike most package claims, *certified organic* is highly regulated by the U.S. Department of Agriculture. It has maintained these high standards since its inception despite industry attempts to weaken its criteria, which means that labels mentioning the word *organic* can be trusted. Nevertheless, there are four degrees of organic certification, a fact that most people do not know. Furthermore, there is a big difference between *100% organic* products and those containing only one or two organic ingredients. As an endcap display, this application will inform the public about the varying levels of organic certification and the criteria that products must meet to qualify for each level.

Although this application will contain more detailed information than the others, it will also include several features that can be understood at a glance. A person quickly looking at the display will still be able to see that there are four levels of certification ranging from more to less organic. Even this much information will be helpful when they are making decisions about which organic products to purchase. A person who has more time to read this display will gain an even greater understanding of this topic.

Initial Concept
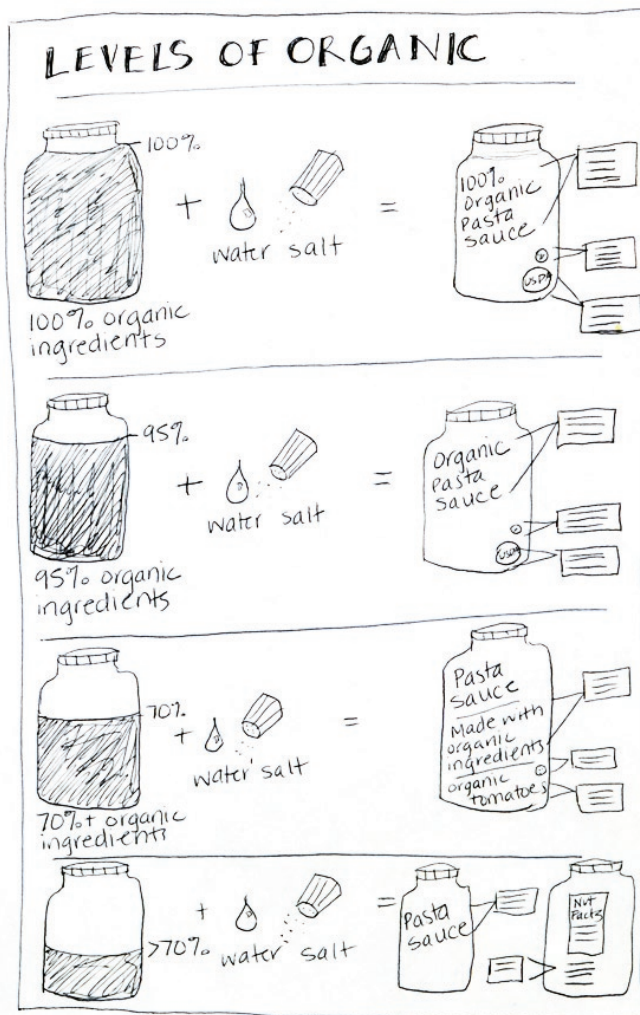
Initial Ideation
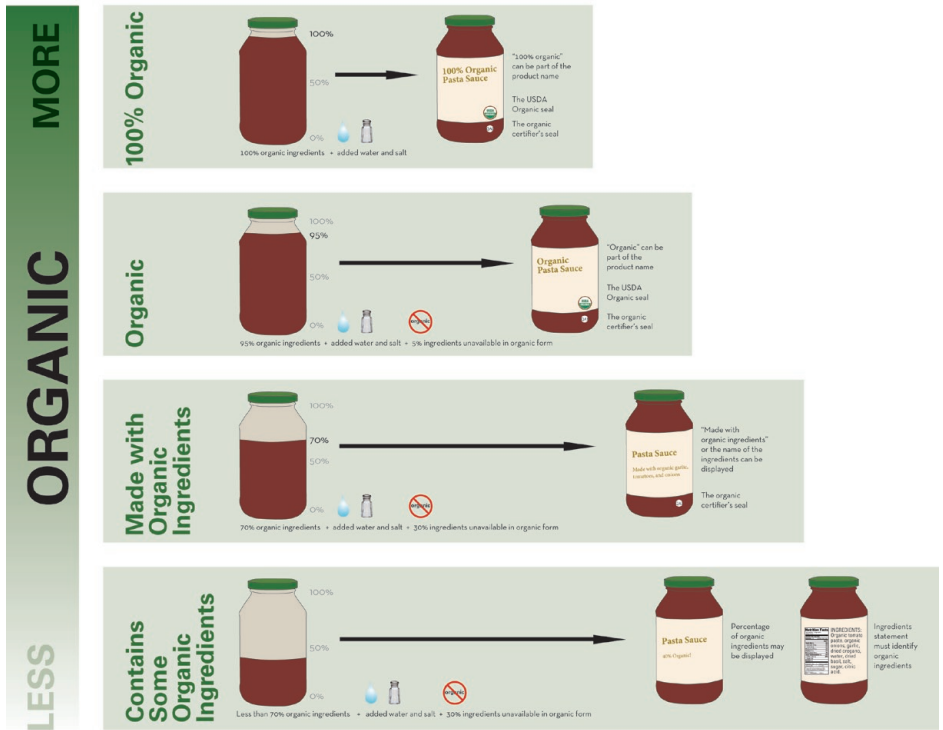
This display offers useful information when read from top to bottom as well as left to right. The thin vertical bar on the left shows that the top level is more organic than the bottom level. Each horizontal band has the name of the organic level on the left, and finishes on the right with illustrations and text indicating how the product can be labeled under each classification.

Application D
Checkout Area Displays

Placing a design solution in the checkout area of a grocery store enables consumers to read and understand information as they wait in line. In this viewing context, it may be possible to install a design application that has more complex and detailed information since people would have more time to observe and understand it.

Description

The claims that appear on food products can be confusing, in part because there are so many of them. Many people are unaware that three types of regulated claims exist, or that there is an unregulated fourth type that looks very similar to the first three. Since consumers are accustomed to seeing claims on the front of food packages, this application will imitate actual package designs to allow them to more easily interpret the information. Packaged cereals often have a large number of claims, so a solution resembling a cereal box could be used to communicate information about health claims, nutrient content claims, and featured ingredients. Using a familiar format in this way will hopefully elicit attention and understanding from the consumer.

Initial Concept

What are health claims?

- Diets low in sodium may reduce the risk of high blood pressure
- Calcium and vitamin D may help prevent osteoporosis.
- Folate may reduce the risk of neural tube defects.
- Diets low in saturated fat and cholesterol may reduce the risk of coronary heart disease.

Health claims are regulated by the FDA. They concern statements that describe a link between an ingredient/nutrient and a lowered risk for a disease or illness.

What are nutrient content claims?

Low Fat!   High Fiber!

3g protein   Omg
per serving   cholesterol

Reduced sodium   Fat Free!

Good source of calcium!

Nutrient content claims are regulated by the FDA. They concern nutrients that have an established daily value (see list at right).

Fat
Sodium
Cholesterol
Carbs
Fiber
Protein
Vitamins
Minerals

Initial Ideation

what's on
your package?

Made with whole grain

No preservatives!

0 grams trans fat

Made with organic corn

No GMOs!

Low sugar

Something similar?

These are **featured ingredients.** They are nutrients that do not have
an established daily value, and they are NOT regulated by the
government. Marketers can highlight any ingredient they want on
the front of their package.
FEATURED INGREDIENTS DON'T ALWAYS EQUAL A HEALTHY PRODUCT.

what's on
your package?

Low fat!

High fiber!

3g protein per serving

Good source of calcium!

Reduced
sodium

0 mg cholesterol

Something similar?

These are **nutrient content claims.** They are nutrients that have
an established daily value, and they are regulated by the
government. However, this does not always mean the product as a
whole is healthy.
ALWAYS READ THE NUTRITION FACTS. BE AN EDUCATED CONSUMER.

what's on
your package?

Diets low in saturated fat and
cholesterol may reduce the risk
of coronary heart disease

Diets low in sodium
may reduce the risk of
high blood pressure

Calcium and Vitamin D
may help prevent
osteoporosis

Something similar?

These are **health claims.** They show a connection between a nutrient
and the reduced risk for a disease or illness, and they are regulated by
the government. However, this does not always mean the product as a
whole is healthy.
ALWAYS READ THE NUTRITION FACTS. BE AN EDUCATED CONSUMER.

Initial Ideation
(continued)

what's on your package?

Nutrient Content Claims

Low fat
High fiber
No cholesterol

Reduced sodium
Good source
of calcium

Nutrient content claims have an established daily value, and they are regulated by the government. However, this does not always mean the product as a whole is healthy.

ALWAYS READ THE NUTRITION FACTS.
BE AN EDUCATED CONSUMER.

what's on your package?

Health Claims

Low sodium reduces
high blood pressure

Calcium prevents
osteoporosis

Health claims show a connection between a nutrient and the reduced risk for a disease or illness, and they are regulated by the government. However, this does not always mean the product as a whole is healthy.

ALWAYS READ THE NUTRITION FACTS.
BE AN EDUCATED CONSUMER.

what's on your package?

Featured Ingredients

No trans fats
Made with
whole grain

Low sugar
No preservatives

Featured ingredients are nutrients that do not have an established daily value, and they are NOT regulated by the government. Marketers can highlight any ingredient they want on the front of their package, and this does not always mean the product as a whole is healthy.

ALWAYS READ THE NUTRITION FACTS.
BE AN EDUCATED CONSUMER.

Each display provides examples of a particular kind of claim to help consumers identify them on actual product packages.
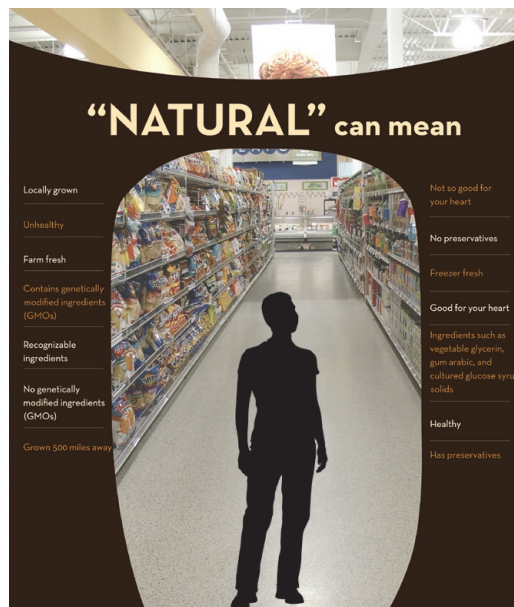
Selected Applications
Integration Into Single System

Many diverse ideas were generated during the initial ideation phase. However, after this first round of brainstorming, the need to integrate these concepts into a single, coordinated system was realized in order to most effectively transfer the main messages to the public in a single grocery store context.

The first step in this process involved selecting the most relevant applications for further development. Applications A, B, and C were chosen. Together, these three applications address a range of information about package claims, and present this information in a variety of formats. To ensure similarity across the entire system, a common typeface and color palette was used. Finalized layouts of each are presented below and on pages 102–104.

Application A
Natural Gateway

Part A

Part B

Application B
Banner System
Natural

Natural	"Natural"	"Natural"	**Yup.** "Natural" on packaged food isn't regulated by the government. So anything can be natural, really. **Better watch what you're buying.**
Natural	"Natural"	"Natural"	**Yup.** "Natural" on packaged food isn't regulated by the government. So anything can be natural, really. **Better watch what you're buying.**
Natural	"Natural"	"Natural"	**Yup.** "Natural" on packaged food isn't regulated by the government. So anything can be natural, really. **Better watch what you're buying.**

Each horizontal sequence begins with a single ingredient (i.e corn, berries, or potatoes), and shows a progression from its minimally to highly processed forms.

Banner System
Featured Ingredients

"No preservatives"	"No trans fats"	"Whole grain"	**Unhealthy.** Featured ingredients aren't regulated, so marketers can highlight any ingredient. They don't necessarily mean that the product is healthy. **Better watch what you're buying.**
"Gluten free"	"Real cheese"	"Has omega-3s"	**Unhealthy.** Featured ingredients aren't regulated, so marketers can highlight any ingredient. They don't necessarily mean that the product is healthy. **Better watch what you're buying.**

Selected Applications
Integration Into Single System *continued*

Banner System
Nutrient Content Claims

"High fiber"

"Low fat"

"No cholesterol"

Healthy?

Nutrient content claims refer to a nutrient with an established daily value, and are regulated, but they don't necessarily mean that a product is healthy. **Better watch what you're buying.**

"Contains calcium"

"Low sodium"

"5g of protein"

Healthy?

Nutrient content claims refer to a nutrient with an established daily value, and are regulated, but they don't necessarily mean that a product is healthy. **Better watch what you're buying.**

The banners on this page as well as the featured ingredients ones on page 102 all focus on the idea that just because a food package carries a nutritional claim doesn't necessarily mean the product is a healthy choice.

Banner System
Health Claims

"**Soluble fiber** may prevent **heart disease**"

"**Low cholesterol** and **saturated fat** may prevent **heart disease**"

"**Low sodium** may reduce **blood pressure**"

Healthy?

Health claims show a link between a nutrient and reduced risk for a diease. They are regulated, but they don't necessarily mean that a product is healthy. **Better watch what you're buying.**

"**Soy protein** may prevent **heart disease**"

"**Fruits and vegetables** may prevent **cancer**"

"**Calcium** helps prevent **osteoporosis**"

Healthy?

Health claims show a link between a nutrient and reduced risk for a diease. They are regulated, but they don't necessarily mean that a product is healthy. **Better watch what you're buying.**

Application C
Endcap Display
Organic Focus
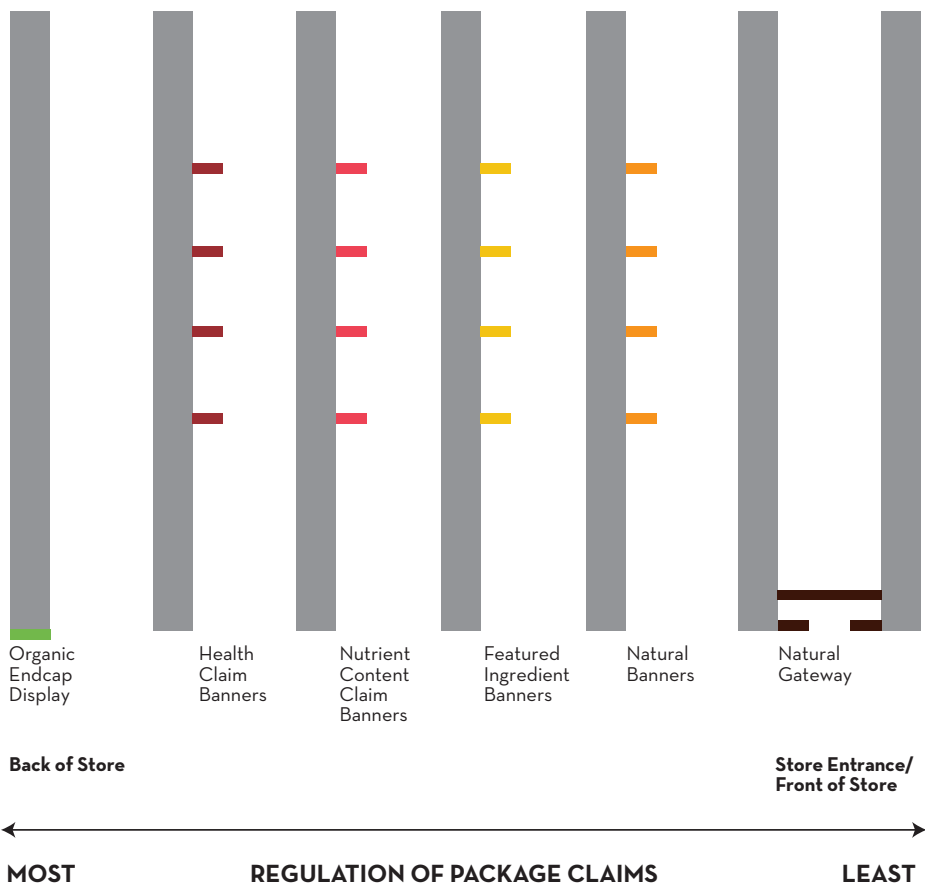

This display describes the four different levels of organic through the use of clear, comparable visuals and minimal text.

Selected Applications
Grocery Store Context

As has already been mentioned, all three applications are intended to coexist in the same store environment. Ideally, they would be placed in a conventional full-service grocery store that sells a range of products, including organic and natural ones. The design applications for this thesis study would be situated along the aisles according to their degree of regulation. For example, the applications focused on the least regulated claims (natural and featured ingredients) would be placed toward the front of the store, and the most regulated ones would be at the back (health claims and organic). This allows important information about unregulated claims to be seen when people first enter the store. The diagram below shows the natural gateway positioned across one of the first aisles at the front of the store. The large size and unusual placement is intended to attract the attention of shoppers. The following four aisles would each have a series of banners, beginning with the natural ones, and ending with those discussing health claims. Lastly, the organic endcap display would be toward the back of the store because it discusses the most regulated claims.

| Organic Endcap Display | Health Claim Banners | Nutrient Content Claim Banners | Featured Ingredient Banners | Natural Banners | Natural Gateway |

Back of Store   **Store Entrance/ Front of Store**

MOST   **REGULATION OF PACKAGE CLAIMS**   **LEAST**

Shoppers could learn about nutritional message-making as they travel throughout the grocery store.

Intermediate Evaluation

Following the ideation phase of this thesis study, the chosen applications (please see pages 107–110) were tested with a sample audience to gather feedback about their efficacy and to see how they could be improved. Testing took place at the Big M Market in Gates, New York, a Rochester-area suburb, on a Saturday between 11 a.m. and 1:30 p.m. Systems of 6 x 10 inch banners were attached to the shelves in an aisle containing soft drinks, potato chips, popcorn, and nuts. The gateway and the endcap layouts were printed as large as possible on 18 x 12 inch presentation boards. Customers browsing the aisle were asked if they would be willing to answer a few questions and provide feedback for this thesis study. After they viewed each design application, they filled out the questionnaire shown on page 111.

Chosen Applications

Prior to the actual evaluation process, each system was further refined to guarantee that the most relevant and useful designs would be tested. The banner sequences discussing the word *natural* and featured ingredients were both chosen to be tested since they provide the most important information about unregulated claims. The banners discussing health claims and nutrient content claims were not tested. It was decided that attempting to test four banner systems, in addition to the gateway and endcap displays, might overwhelm or confuse consumers and lead to an unwillingness to participate in the evaluation process.

Gateway Sequence
Natural

"NATURAL" can mean

No preservatives

Unhealthy

Farm fresh

Contains genetically modified ingredients (GMOs)

Recognizable ingredients

No genetically modified ingredients (GMOs)

Grown 500 miles away

Not so good for your heart

Locally grown

Freezer fresh

Good for your heart

Ingredients such as vegetable glycerin, gum arabic, and cultured glucose syrup solids

Healthy

Has preservatives

Why? Because the government **doesn't regulate** the word **"natural"** on food packages. Are you an educated consumer?

Banner System
Natural

Natural | "Natural" | "Natural"

Yup.

"Natural" on packaged food isn't regulated by the government. So anything can be natural, really.

Better watch what you're buying.

Banner System Installation
Natural

Banner System
Featured Ingredients

"No preservatives"
(Partially hydrogenated soybean oil)

"No trans fats"
(Bleached enriched flour)

"Whole grain"
(High fructose corn syrup)

Healthy?

The **highlighted** ingredients on food packages don't make up for the other **unhealthy** ingredients they might contain.

Better watch what you're buying.

Banner System Installation
Featured Ingredients

Endcap Display
Organic

In order to more closely relate to decisions made for other parts of the design system, photographic texture was integrated into this layout.

Intermediate Evaluation

Written Evaluation Form

In-Progress Grocery Store Applications

Terry Ann Hayes
RIT Graphic Design MFA Program

1 How many types of certification exist for *organic*?
  A One   B Two   C Four   D Six

2 Is the word *natural* on food packages regulated or unregulated by the U.S. government?
  A Regulated   B Unregulated

3 When you see the word *natural* on a food package, what does it mean to you?

Please answer these questions after viewing the gateway, endcap, and banner layouts.

Gateway Layout

1 What is the main educational goal of this gateway?
  A To encourage people to buy *natural* products
  B To discourage people from buying *natural* products
  C To show that *organic* products are better than non-organic ones
  D To show that *natural* can mean anything
  E To show that *natural* products are healthy

2 If you were grocery shopping, would this gateway catch your attention?
  A Yes   B No
  Why?

Endcap Layout

1 What is the main educational goal of this endcap?
  A To encourage people to buy *organic* products
  B To show that there are many types of *organic* pasta sauce
  C To educate people about the different types of *organic* certification
  D To show that *100% organic* products are healthier than other *organic* products

2 If you were grocery shopping, would this endcap catch your attention?
  A Yes   B No
  Why?

Banner Layouts

1 Is the word *natural* on food packages regulated or unregulated by the U.S. government?
  A Regulated   B Unregulated

2 What is the main educational goal of the second set of banners?
  A To encourage people to buy waffles, cookies, and toaster pastries
  B To show that one package claim doesn't necessarily mean a product is healthy
  C To show that these are unhealthy products
  D To encourage people to carefully consider the products they buy

3 If you were grocery shopping, would these banners catch your attention?
  A Yes   B No
  Why?

All Displays

1 Do you believe that all three layouts (gateway, banners, and endcap) function together as one family or system?
  A Yes   B No

2 Which display (if any) seems to be the most different from the others?
  A Gateway   B Banners
  C Endcap   D None

3 If there is a difference, is it useful or confusing?
  A Useful   B Confusing

Please list any suggestions you have to make this family or system of displays more effective.

Intermediate Evaluation
Analysis of Results

Preliminary Questions

● single response
● correct response(s)

1 How many types of certification exist for the word *organic*?
●●●●●●●●●● One
●●●●●●●●●● Two
●●●●●●●●●● Four
●●●●●●●●●● Six

2 Is the word *natural* on food packages regulated or unregulated by the U.S. government?
●●●●●●●●●● Regulated
●●●●●●●●●● Unregulated

3 When you see the word *natural* on a food package, what does it mean to you?
"That they want you to buy it – you think that it is better for you –
  but it's not organic."
"Real, not fake."
"No pesticides, grown naturally."
"It means natural ingredients, but not necessarily healthy or organic."
"Real stuff."
"No chemicals used during growth."
"Not processed; better for you."
"All-natural ingredients."
"Green, organic, no artificial ingredients."
"It means companies haven't necessarily changed their ingredients,
  but they have wised up to the new health trends."

Gateway Layout

1 What is the main educational goal of this gateway?
●●●●●●●●●● To encourage people to buy natural products
●●●●●●●●●● To discourage people from buying natural products
●●●●●●●●●● To show that organic products are better than non-organic ones
●●●●●●●●●● To show that natural can mean anything
●●●●●●●●●● To show that natural products are healthy

2 If you were grocery shopping, would this gateway catch your attention?
●●●●●●●●●● Yes
Why?
"Always looking for organic products"
"Makes you stop and read it; it attracts attention."
"It's large and the text is easy to read."
"Never seen in a store before."
"Simplifies the message; I don't know what to believe."
"Large."
"Because I thought it was regulated."
"Because there usually aren't large signs in the aisles."

●●●●●●●●●● No
Why?
"I don't look for this kind of thing."

Endcap Layout

1 **What is the main educational goal of this endcap?**

○○○○○○○○○○● To encourage people to buy organic products

○○○○○○○○○○○ To show that there are many types of organic pasta sauce

○○○○●●●●●●● To educate people about the different types of organic certification

○○○○○○○○●●● To show that *100% organic* products are healthier than other organic products

2 **If you were grocery shopping, would this endcap catch your attention?**

○○○○○●●●●●● Yes

Why?
"Information."
"Catches your eye."
"It's large and the text is easy to read."
"Never seen before."
"Because I believe it."

○○○○○●●●●●● No

Why?
"Not paying attention for this kind of thing."
"Too confusing."
"Organic is not important to me."
"I don't look at the items at the end of the aisles."

Banner Layouts

1 **Is the word *natural* on food packages regulated or unregulated by the U.S. government?**

○○○○○○○○○○● Regulated

○●●●●●●●●●● Unregulated

2 **What is the main educational goal of the second set of banners?**

○○○○○○○○○○● To encourage people to buy waffles, cookies, and toaster pastries

○○○○○○○●●●● To show that one package claim doesn't necessarily mean a product is healthy

○○○○○○○○○○○ To show that these are unhealthy products

○○○○○●●●●●● To encourage people to carefully consider the products they buy

3 **If you were grocery shopping, would these banners catch your attention?**

○○○○○○●●●●● Yes

Why?
"Catches your eye."
"Bright, colorful, easy-to-read."
"Never seen before."
"Be a more educated consumer."

○○○○○○●●●● No

Why?
"Too high."
"Too small. I am dead to advertisements."

All Displays

1 **Do you believe that all three layouts (gateway, banners, and endcap) function together as one family or system?**

○○●●●●●●●● Yes
●●●●●●●●●●●● No

2 **Which display (if any) seems to be the most different from the others?**

○○○○●●●●●●● Gateway
●●●●●●●●●●●● Banners
●●●●●●●●●●●● Endcap
●●●●●●●●●●●● None

3 **If there is a difference, is it useful or confusing?**

○○○○●●●●●● Useful
○○○○○○○●●●● Confusing

Please list any suggestions you have to make this family or system of displays more effective.

"Make the banners face people, not perpendicular to shelves."
"Double-sided [banners]."
"Simple as possible."
"Eye-catching; hand-drawn images?"
"More colorful."

Conclusions

The answers from the preliminary evaluation questions (top of page 112) show that the majority of people were unclear about the true meaning of *natural* and the number of organic certification levels that exist. During the evaluation, many people verbally expressed their uncertainty about these topics in advance, but each respondent was encouraged to guess to the best of their ability on the questionnaire. In response to the third preliminary question, which asked the meaning of the word *natural*, the answers were ambiguous and reflected people's beliefs that a food package with a natural claim *should* be distinguishable from a conventional one. For example, one person wrote that natural means "No pesticides, grown naturally." Another said, "Not processed, better for you," implying that natural products are different from conventional ones that have been chemically fertilized and processed.

After viewing all three layouts, most participants were able to correctly answer the questions about the layouts' goals. Eight out of eleven respondents chose the correct answer regarding the main educational goal of the gateway layout. Nine participants said that the gateway would catch their attention if they saw it full-size in a grocery store. When asked why it would attract their attention, most responses attributed their answer to the large size and unexpected context of the gateway. Overall, the gateway was the most clearly understood of all three designs.

In contrast, the organic endcap was the most confusing layout to the grocery store participants. Although the majority were able to correctly identify its main educational goal, only half stated that this endcap would attract their attention in the store. One participant said that the endcap was too confusing, and two others reported that they do not seek this type of information.

After seeing both banner systems, ten out of eleven respondents were able to correctly answer that the word *natural* is unregulated on food packages. This represents a 36 percent increase in correct answers from when the question was initially asked in advance of actually viewing the displays. Although the main educational goal of the second set of banners was to show that one package claim doesn't necessarily mean a product is healthy, only four people chose this answer. Six other participants believed that the main goal was to encourage people to carefully consider the products they buy. While this goal was not intended to be the main goal, it can be considered an acceptable response. Lastly, only half of the people surveyed stated that the banners would catch their attention while shopping. Two people who said the banners would not attract their attention thought they were "too high" and "too small."

Finally, most participants thought that all the displays functioned together as one system. However, seven stated that the gateway was the most different from the others, and four said the endcap was most different. When answering whether the difference was useful or confusing, the majority of people who said the gateway was different thought it was a useful difference. The majority of people who said the endcap was different believed it was confusing. Final suggestions included simplifying the displays as much as possible and making them more accessible to people from all vantage points in the aisle.
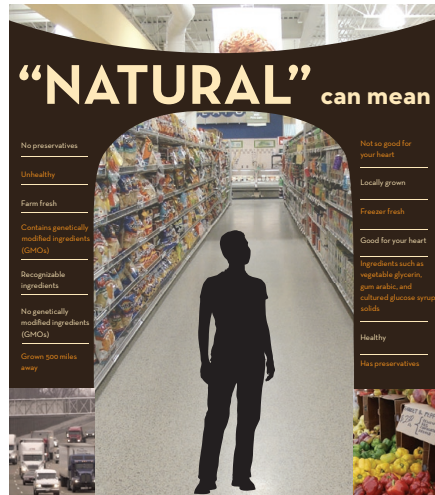
Implementation

Following the testing component of the intermediate evaluation phase, participant feedback as well as suggestions from thesis advisors were integrated into final design applications. The overall goal for all three applications was to streamline the visual and verbal communication to make each solution as accessible as possible within the grocery store context. Modifications were also made to maximize the congruency between individual parts of the system. Images of the final applications are shown on pages 117–123.

Final Solution

As has already been mentioned, the natural gateway received the most positive participant feedback during the intermediate evaluation. All but two people said that the gateway would catch their attention in the store, which can be mainly attributed to its large size and unusual placement spanning the aisle. One of the respondents did state that the gateway would not catch his attention, but this was due to the fact that he does not look for this kind of information while shopping. As a result of these findings, there were no further changes made to the gateway after the evaluation at the Big M grocery store on April 11, 2009.

Part A

Part B

Final Solutions

During the intermediate evaluation at the Big M grocery store, it became obvious that the banners were too small to adequately attract attention. The photographs of the banners in the store on page 110 show the visual competition of the banners against the varied and colorful shelves lining the aisle. To resolve this, the final banners would be enlarged to be 11.25 wide by 18 inches tall. This larger size will give the banners more prominence within the aisle context while still maintaining a narrow enough width to avoid hindering traffic.

Additional refinements were made to the natural banners below to clarify overall message intentions. Quotations were added around *natural* on the first banner in each set to match the quotations on the second and third banners. Even though the first banners show fairly unprocessed fruits and vegetables, these items could have easily undergone genetic modification or been sprayed by chemical pesticides. These processes and considerations, therefore, could also be called into question. Moreover, placing quotation marks around the word *natural* on the first banner of each set could elicit additional audience reaction since many people might wonder why the naturalness of fruits and vegetables was being questioned.

Implementation

Banner Systems *continued*
Natural

Banner System Installation

Final Solutions

Although a sequence of four banners was tested during the intermediate evaluation (described on page 106), the featured ingredients banners also have the option of being presented in pairs. The banners below would function well situated in a long aisle where shoppers could view them one after another in succession. Having a sequence of three banners visualizing different potentially misleading claims would make a strong impact upon the consumer and build up to a final banner with explanatory text. However, to provide a quicker message in even busier contexts or areas with more limited space, the banner pairs shown below could also be effective. This coupling wouldn't be as successful with the natural banner systems on page 118 since their images are arranged to show a steady progression from least processed (the first image) to most processed (the third image), and all three images need to be viewed together.

Banner Sequences

"No preservatives"
(Partially hydrogenated soybean oil)

"No trans fats"
(Bleached enriched flour)

"Whole grain"
(High fructose corn syrup)

Healthy?

The **highlighted** ingredients on food packages don't make up for the other **unhealthy** ingredients they might contain.

Better watch what you're buying.

"Gluten free"
(Red 40)

"Real cheese"
(Autolyzed yeast)

"Has omega-3s"
(Maltodextrin)

Healthy?

The **highlighted** ingredients on food packages don't make up for the other **unhealthy** ingredients they might contain.

Better watch what you're buying.

Banner Pairs

"Whole grain"
(High fructose corn syrup)

Healthy?

The **highlighted** ingredients on food packages don't make up for the other **unhealthy** ingredients they might contain.

Better watch what you're buying.

"Has omega-3s"
(Maltodextrin)

Healthy?

The **highlighted** ingredients on food packages don't make up for the other **unhealthy** ingredients they might contain.

Better watch what you're buying.
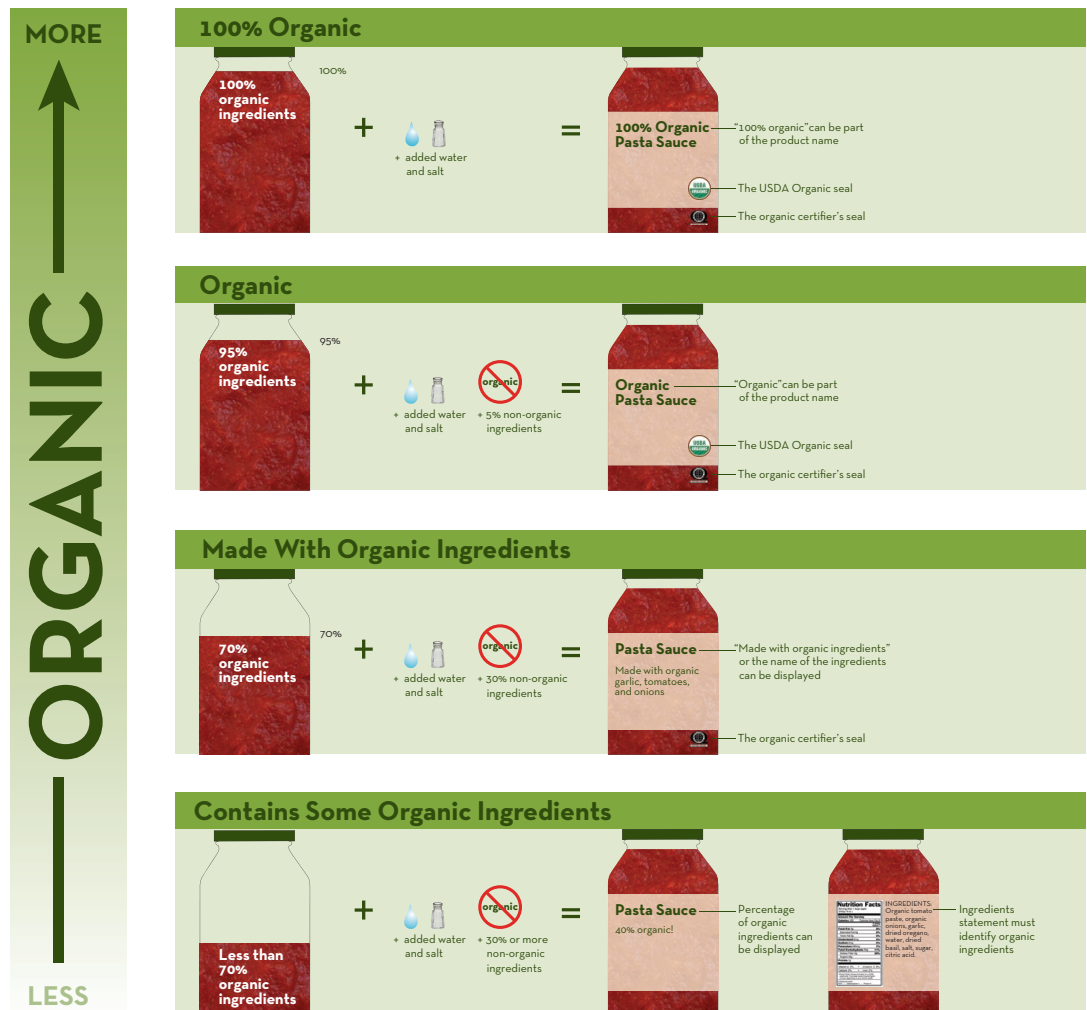
Final Solution

This application produced the most confusion during the grocery store evaluation. Though the majority of participants were able to identify the primary goal of this installation, many seemed overwhelmed by the amount of information it contained. In addition, half of the respondents indicated that this display would not catch their attention if they were grocery shopping, either because they don't look for information about organic products or because they found the design application itself to be confusing. To address these issues, multiple refinements were made to the endcap display. The label for each horizontal band was moved to the top of each band to establish the most beneficial visual hierarchy. Smaller revisions included removing unnecessary rules and bars, simplifying the color palette, and replacing the large arrows with equal signs.

**Organic Endcap
Installation**

Dissemination

Sharing thesis research and outcomes with others is a crucial part of the process. Throughout the development of this thesis study, several opportunities were available to present the information to others and gather feedback (please see page 124). Since the intention of this project is to help consumers through education and awareness, other possibilities for long-term dissemination are described on page 126.

Dissemination
Short-Term Opportunities

Thesis Sharing Session

On January 28, 2009, a summary of thesis research and progress was presented to first year graduate students and faculty in the Graphic Design MFA Program. Each MFA candidate discussed his or her thesis for approximately 30 minutes. The purpose of this session was to expose the first year graphic design MFA students to the thesis process and answer any questions about topic selection, requirements, and the general timeline. Feedback and suggestions from the first year students and faculty were valuable to the continued development of this thesis study. The presentation of this information to a larger audience was also good practice in anticipation of the public exhibition and reception in the RIT Bevier Gallery during spring quarter.

MFA Thesis Exhibition

To fulfill part of the MFA degree requirements, this thesis was displayed in the Bevier Gallery at the Rochester Institute of Technology from March 9–25, 2009 along with thesis projects from other design, art, and craft MFA students in the College of Imaging Arts and Sciences. Important summary information about this thesis project was organized and presented on large presentation panels. The panels included a project definition, key precedents and research, synthesis, ideation, and in-progress design applications.

The panels were wall-mounted and arranged in the gallery space in a particular sequence to ensure maximum visual impact and audience comprehension. When visitors first entered the gallery, they could see the bright orange *Deception or Truth* panel above a display of actual food packages. The same orange color on the nearby definition panel encouraged viewers to move to the left of the first panel to begin reading the intended sequence. The panels were arranged in a clockwise flow, ending with a final panel describing in-progress design solutions.

The image above shows the initial view of the exhibition from the gallery entrance.

MFA Thesis Exhibition
(continued)
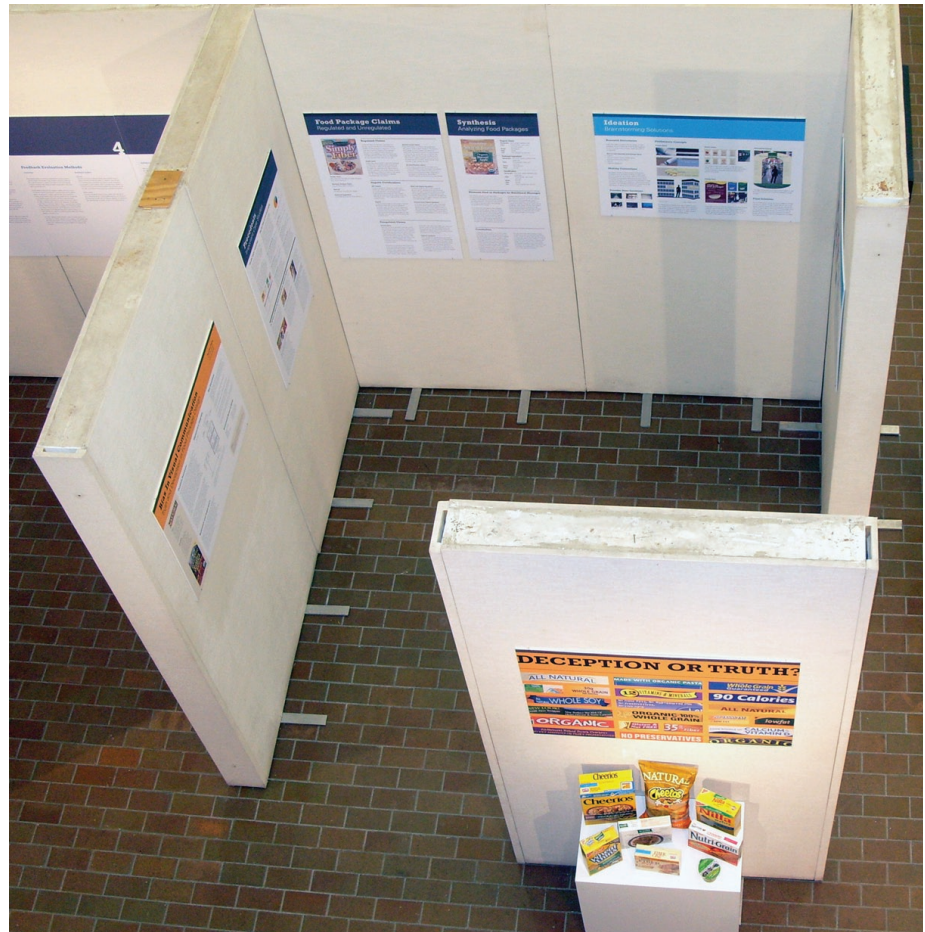
The aerial view of the gallery space shows the clockwise flow of information.

The main colors chosen for each panel reflect its specific content. The first two panels, which introduce the topic, use a vibrant, almost neon, orange that is not found in nature to represent the confusion over claims on packages and their veracity. The three following panels give objective information on package claims, nutritional research, and the analysis of food packages. The warm gray used on the middle panels corresponds with the neutrality of these topics. Finally, the last three panels show ideation and in-progress solutions, which are intended to educate the public about potentially misleading package claims. The light teal blue used here represents clarity and is deliberately intended to contrast with the bright orange used on the first two panels. Please see Appendix B on page 164 for images of all exhibition panels.

Full-Service Grocery Stores

The applications created for this thesis study are intended to be installed in grocery stores to help consumers make informed buying decisions. Ideally, major grocery chains in the Rochester area (such as Wegmans and Tops) could utilize these displays to help their shoppers become more educated about the foods they buy. However, because grocery stores sell a range of products, from very healthy to very unhealthy, they may be hesitant to situate displays in their stores that could decrease the sales of some of their products. It is unfortunate that the politics of the food industry may hinder a positive effort to help consumers become more educated and possibly reduce obesity and other food-related health conditions.

Health Food Stores

Grocery stores that specialize in health foods might be especially interested in using these design applications to further educate their customers. Some of these stores (examples include Lori's Natural Foods and Abundance Co-op in Rochester, New York) carry a large number of organic products, so having the organic endcap display at the end of an aisle would help clarify the differences between the four levels of organic certification. Since these stores generally focus on healthier and/or less processed products and don't sell as many conventional, potentially unhealthy foods as most full-service grocery stores, they may be more willing to use these displays because concern over this information affecting sales may not be as substantial.

**Community
Health Organizations**

Another possible avenue for dissemination would be to approach community-based health organizations such as the Greater Rochester Health Foundation (which has launched a "Be A Healthy Hero" campaign to reduce childhood obesity in the area). These groups may be interested in using the design solutions to complement their own initiatives. They could be modified for use in libraries, community centers, or schools to reach a wider range of viewers.

**Presentations to
Specific Audiences**

Though the design applications were originally intended to function alone without any supportive information or resources, they could be adapted for use in a presentation format in the future. Research findings could be taken from this thesis study and incorporated into a lecture for a variety of audiences. Images of the design applications could be used in a projected visual presentation to inform the audience about food package claims. Possible opportunities could include Weight Watchers meetings, parenting groups, employee wellness seminars, or college freshman orientations. In particular, people belonging to Weight Watchers groups (or similar health and weight loss groups) would likely be interested in learning about ways to make educated choices while grocery shopping and assist their weight loss goals.

Retrospective Evaluation

After incorporating suggestions from the intermediate evaluation phase into each design application (please see pages 117–122), the banner systems were tested once more to gather additional data about audience preference regarding the multiple options for the natural and featured ingredients banner sequences. This evaluation asked questions about which sequence participants preferred for both natural and featured ingredients and which one they thought had images that most closely corresponded with the accompanying text. Afterwards, the strengths and weaknesses of all applications and further refinements for the future were explored.

Retrospective Evaluation

Electronic Evaluation

Part A, Natural

During the intermediate evaluation (please see pages 106–115), only one option each for the natural and featured ingredients banner systems was tested because of time and space constraints in the grocery store. To determine which banner sequence was the strongest within each category, a retrospective evaluation was conducted with a diverse group of approximately 120 students in an Introduction to Psychology class at RIT. This class was taught by Professor Rhiannon Hart, who also served as an associate advisor for this thesis study. The class consisted mainly of non-psychology majors enrolled on an elective basis, with approximately half being first-year students. These students were asked to look at a PDF document which included a sequence of images showing the banners in a grocery store aisle (shown below and on pages 129–132). After viewing all banner sequences, they filled out an optional two-page electronic questionnaire. Twenty-seven students completed a questionnaire.

PDF Sequence

Banner System 1

PDF Sequence
Banner System 2

PDF Sequence

Banner System 3

PDF Sequence
Banner System 4

Banner System 4

Banner System 4

"No preservatives"
(Partially hydrogenated soybean oil)

"No trans fats"
(Bleached enriched flour)

Banner System 4

Banner System 4

"Whole grain"
(High fructose corn syrup)

Healthy?

The **highlighted** ingredients on food packages don't make up for the other **unhealthy** ingredients they might contain.

Better watch what you're buying.

Retrospective Evaluation

Electronic Evaluation *continued*
Part B, Featured Ingredients

PDF Sequence

Banner System 5

Banner System 5

"Gluten free"
(Red 40)

Banner System 5

"Real cheese"
(Autolyzed yeast)

Banner System 5

"Has omega-3s"
(Maltodextrin)

Banner System 5

Healthy?

The **highlighted** ingredients on food packages don't make up for the other **unhealthy** ingredients they might contain.

Better watch what you're buying.

Evaluation Form

Page 1

In-Progress Grocery Store Applications

Terry Ann Hayes
RIT Graphic Design MFA Program

Please answer these questions after viewing the five banner systems. When you have completed the questionnaire, please press the "send" button. Thank you!

Part A

1 Is the word *natural* on food packages regulated or unregulated by the U.S. government?
○ Regulated   ○ Unregulated

2 What is the main educational goal of banner systems 1–3?
○ To encourage people to buy *natural* products
○ To discourage people from buying *natural* products
○ To show that *organic* products are better than non-organic ones
○ To show that *natural* can mean anything
○ To show that *natural* products are healthy

3 Which banner system do you like the **best**?
○ Banner System 1
○ Banner System 2
○ Banner System 3
Why?

4 Which banner system do you like the **least**?
○ Banner System 1
○ Banner System 2
○ Banner System 3
Why?

5 The images on the banners complement with the text.
○ Yes
○ No
○ Somewhat

6 Which images (if any) do not complement the text or seem out of place?

7 If you were grocery shopping, would these banners catch your attention?
○ Yes
○ No
Why?

Evaluation Form

Page 2

In-Progress Grocery Store Applications

Terry Ann Hayes
RIT Graphic Design MFA Program

Please answer these questions after viewing the five banner systems. When you have completed the questionnaire, please press the "send" button. Thank you!

Part B

1 What is the main educational goal of banner systems 4–5?
   ○ To encourage people to buy waffles, cookies, and pizza.
   ○ To discourage people from buying waffles, cookies, and pizza.
   ○ To show that one package claim doesn't necessarily mean a product is healthy
   ○ To show that these are unhealthy products

2 Which banner system do you like the **best**?
   ○ Banner System 4
   ○ Banner System 5
   Why?

3 The images on the banners complement with the text.
   ○ Yes
   ○ No
   ○ Somewhat

4 Which images (if any) do not complement the text or seem out of place?

5 If you were grocery shopping, would these banners catch your attention?
   ○ Yes
   ○ No
   Why?

6 Please list any suggestions you have to make these banners more effective.

SEND

Retrospective Evaluation
Analysis of Results
Part A, Natural

Question 1

Is the word *natural* on food packages regulated or unregulated by the U.S. government?

4 answers	Regulated
23 answers	**Unregulated**

Question 2

What is the main educational goal of these banner systems?

2 answers	To encourage people to buy natural products
0 answers	To discourage people from buying natural products
1 answer	To show that organic products are better than non-organic ones
22 answers	**To show that natural can mean anything**
0 answers	To show that natural products are healthy

Question 3

Which banner system do you like the best?

12 answers	Banner System 1

Why?

Message Strength

"Color scheme was the best, most effective transition from healthy to 'unhealthy' food."
"Most believable."
"System 1 juxtaposes cheese puffs with corn and a muffin; much stronger than the jelly beans or the potato chips (which aren't as easily recognizable from the image)."
"This was the system that made me understand the point the most."
"It's direct and to the point. It doesn't have fine print."
"Because it shows corn and other ingredients which use a form of corn and says they are natural."

Attracts Attention

"It gets the idea across, and the banner was just sweet and simple and attracted a lot of attention from me."

Aesthetics

"It looks fresh and simple. The background of System 1 looks like it merges with the store. The food images are cropped nicely."
"The colors complement the food and each other."

Personal Preference

"After seeing this one, the others seemed repetitive. This one wins by default."
"The following banners derive from the one before them, so it makes more sense showing that anything can mean *natural.* Plus, the color is catchy."

Question 3 (continued)	12 answers **Why?**	Banner System 2

Message Strength

"I thought that the *natural* label under the jellybeans was very funny. Plus, the only
thing under Banner System 2 that was healthy was the fruit at the beginning.
I found that to be very ironic."

"Most believable."

"Because it is saying that even though a product may contain copious amounts of sugar
and little fruit, it is still healthy."

"It's direct and to the point. It doesn't have fine print."

"The color of the box surrounding the text matches the food and all the food has a
similarity that is more recognizable. The food it shows is obvious in nature."

Aesthetics

"The photographs are nice."

Personal Preference

"I like the foods that they are showing."

"I like Banner System 2 better than the others because it features foods that I would
normally buy, with the exception of the jelly beans."

"I like the colors and I have a sweet tooth."

6 answers   Banner System 3
Why?

Message Strength

"Because it was all potatoes (just made a different way). It made more of an impact
of how a product can be natural, but still be bad for you. The other ones didn't make
as big of an impact."

"It's more credible because we can figure out each is made from potatoes, step by step,
like telling a whole story."

"I like System 3 because it shows fatty, greasy foods, and says they are natural,
which proves the point."

"The following banners derive from the one before them, so it makes more sense
showing that anything can mean *natural*. Plus, the color is catchy."

Personal Preference

"I like potato chips."

"I have a gluten allergy and even though companies say a product is wheat-free, it can
still contain MSG or maltodextrin, which are mostly derived from wheat products."

Question 4

Which banner system do you like the least?

7 answers   Banner System 1
Why?

Unbelievable/Low Message Strength
"The images don't show 'unnatural products.' There can be natural or organic versions."
"We all know that they are not natural."
"I like System 1 the least because it shows healthier foods as natural, which is true."

Aesthetics
"Because the foods that were chosen weren't as eye-catching as the others."

Personal Preference
"No reason."
"No reason really."

7 answers   Banner System 2
Why?

Unbelievable/Low Message Strength
"We all know that they are not natural."
"The one with the berries followed by the ice cream wasn't as convincing. I'm sure there are all-natural ice creams out there. It just seemed less effective in convincing me."

Aesthetics
"The pink color doesn't match the brown well."
"Garish color scheme."

Personal Preference
"Too many sweets."

14 answers   Banner System 3
Why?

Unbelievable/Low Message Strength
"The potato chips aren't immediately clear as potato chips. Additionally, what makes them not *natural*?"
"These food items seemed more loosely connected than those in the other systems."
"In Banner System 3, the foods other than the potatoes are obviously unhealthy for people and are certainly unnatural, therefore as a consumer I am less likely to buy those foods since the package claims are unreliable."
"I found it to be the least honest of the three."
"Because even though potatoes are used in the other products, they are not natural."
"I think potato wedges can be healthy for you, but other than that the message is still clear."
"Because it didn't make as big of an impact. I know that foods contain things that are unhealthy, but you see that on TV all the time (i.e. Juicy Juice commercials) so it doesn't come to mind as that bad for you."

Question 4 (continued)	**Doesn't Attract Attention** "Banner System 3 isn't visually appealing. It doesn't grab my attention."

Aesthetics
"The type of food in System 3 doesn't look very fresh. It is magnified too much."

Personal Preference
"Not sure, I just didn't like it."
"I don't like the color."
"I don't like the photography/subject matter as much. I also don't like the yellow."

Question 5

The images on the banners complement the text.

13 answers	Yes
1 answer	No
12 answers	Somewhat

Question 6

Which images (if any) do not complement the text or seem out of place?

Unhealthy Products
"The ones with the junk food. I think this is the point though."
"The *natural* that matched with the fruit and veggies, but who knows
   what's *natural* or not?"
"The fries, waffles, and ice cream are just some examples of images that seemed
   out of place."
"The Cheetos."
"The Cheetos one does not; those are not natural at all. Many of them do not
   match the text."
"The candy, cheese puffs, and chips."
"The 'junk food' in the natural section."
"Some of the pictures make sense with the *natural* statement while some of them
   are obviously contradictory."
"*Natural* accompanied by unnatural food images such as cheese curls,
   and healthy banner titles like *no trans fat* accompanied by foods that are still
   not necessarily healthy, seem out of place and truly unbelievable."
"All images in each banner system after the first. What makes them unnatural?"

Aesthetics
"In the first system, the color was red. It looked kind of funny. Then in the third system,
   the color was yellow. I thought that looked better."
"Close-up of the chips is a little awkward."
"Banner System 1 Image 2, because we can't really tell if it's made from corn flour
   or another kind of flour."

Question 6 (continued)	**None** "None of the images seem out of place or don't complement the text." "None." "Assuming the goal of the banners was to illustrate the fluid nature of what can be called *natural*, all these images fit." "They all complement the text." "I feel that they all complement the text."
Question 7	**If you were grocery shopping, would these banners catch your attention?** 18 responses Yes **Why?**

Educational Message

"Everyone wants to know what they're eating. It's all curiosity."

"I would notice the drastic difference between what I thought was natural and
  what can be called *natural*."

"When you see the image of the cheese puffs matched with the word *natural,*
  it makes you stop and take a second look because it's so unlikely."

"Yes, because most of the banners do not go along with what I know to be true
  about food products."

"Because of the one-word lines and the photos, plus having them next to each other
  conveys the point that they are not all natural or they have additional
  non-healthy ingredients."

"Just because it would go to show me to actually look at the labels if I were trying
  to start a healthy eating habit."

"The pictures are bold and the headline on the banner with text is suggestive
  and makes me want to read more**."**

Aesthetics/Physicality

"They are brightly colored and intriguing when viewed in order."

"They are bright and are big signs with large pictures on them."

"They look very real and they are at eye level."

"I enjoy the foods on the pictures so it would draw my attention plus they are huge,
  so that helps."

"Colorful and eye-catching. Food looks attractive**."**

"They're really big and somewhat impede my way**."**

"Vibrant. I read food labels closely so these would definitely interest me."

"They are very big and colorful."

"They are bigger than the surrounding objects and more colorful."

7 responses   No

Why?

Ignore Ads/Displays

"As a shopper, I'm accustomed to just ignore things like that."

"I tend to ignore advertisements, especially large banners."

Question 7
(continued)

Lack of Interest

"Because I think people would realize what they are really eating, even though they say *natural*."

"I don't look at that; I tend to plan what I want ahead of time."

"Usually when I am grocery shopping I know exactly what I want and am going to get."

"I'm not used to seeing a banner advertising cheese puffs with the word *natural* under it."

"I don't really pay attention if an item is natural or not, just if I want it."

Retrospective Evaluation
Analysis of Results
Part B, Featured Ingredients

Question 1	**What is the main educational goal of banner systems 4–5?**
	1 response — To encourage people to buy waffles, cookies, and pizza.
	0 responses — To discourage people from buying waffles, cookies, and pizza.
	23 responses — To show that one package claim doesn't necessarily mean a product is healthy.
	1 response — To show that these are unhealthy products.

Question 2	**Which banner system do you like the best?**
	19 responses — Banner System 4
	Why?

Message Strength

"I understood what *no trans fats* meant. I have no idea what Omega-3's are."

"Because they are foods that people tend to eat more of."

"Food images seem to illustrate the claims best."

"They showed that good is not always 'good.' Sometimes it's bad, and we need to pay more attention."

"It has more common phrases on the banners that you would see all the time in the grocery store. Also, on Banner System 5, I was lost as to what Omega 3's are."

"I like Banner System 4 best because it features things that I would not mind eating even though I know the claims are misleading."

"The last two images are perceived to be more common snack foods."

"These were more obvious contradictions."

"Because I actually like those foods and now I know that their claims don't outweigh the bad."

"We know the unhealthy things the foods contain are unhealthy; fits the goal more."

"I don't know what Omega-3's are [in Banner System 5]."

Aesthetics

"The images and colors complement the text well and get the point across more effectively."

"The food pictured was appealing."

"The color was catchy and pictures of junk food are always appetizing."

Personal Preference

"Once I had seen 4, 5 seemed less interesting. Nothing was wrong with 5 exactly."

"No reason."

"Waffles."

"I like the content."

"That Pop Tart looks really good."

"I like the photographs, colors, and subject matter better."

Question 2 (continued)	6 responses **Why?**	Banner System 5

Message Strength

"It's 'in your face.' Confrontational."

"Was not as obvious."

"They showed that good is not always 'good.' Sometimes it's bad, and we need
  to pay more attention."

Aesthetics

"Banner System 5 was more colorful and more artistic."

Question 3	**The images on the banners complement the text.**	
	20 responses	Yes
	2 responses	No
	5 responses	Somewhat

Question 4 **Which images (if any) do not complement the text or seem out of place?**

All Images

"The images in Banner System 5 don't complement the text well."

"In a way, all."

"If these were the ones with the ingredients, then they just seemed out of place in
  general. I really don't know what everything does to you so therefore I can't judge
  how bad they are for me."

Specific Images Because of Content

"The [image with] Omega-3's; they seem very obscure."

"The images of the 'junk' food."

"The images do somewhat complement the text because the statements about
  the images are true, but they are a little confusing since the text seems to be saying
  two different things about the images."

Specific Images Because of Aesthetics

"The image of the pizza is not appetizing at all and I would hesitate to put it up
  in a grocery store."

"Pizza because the photography is a little bit lame."

"The pizza seemed a bit off, but only because I had a hard time visualizing
  cooked pizza coming in packages."

None of the Images

"None."

"None of them."

"All of the images complement the text. Instead of claiming that the foods
  are *natural*, they simply reveal a healthy aspect of the food, which is
  much more plausible."

Question 5

If you were grocery shopping, would these banners catch your attention?

18 responses   Yes

Why?

Educational Message

"It's all curiosity. It might not affect what I buy, but at least I'll know."

"Because people will see what these specific foods actually contain."

"The foods used are fairly recognizable, which would spark interest in what the text said."

"The pictures of junk food catch people's eyes and the title on the text banner also makes me want to read more since it just leaves me hanging."

"They are very attractive and I want to make sure I am healthy. Anything deceiving is interesting."

"Those banners really tell me something I didn't know or I have not noticed before, and they can help me choose more healthy products."

"Yes, because the banners are somewhat misleading."

"Because I would actually look further into the foods I was purchasing to see how healthy it was or not."

Aesthetics

"They are bigger and more colorful than their surroundings. The appeal of the food brings you in."

"Lots of food images; good images."

"They are bright and big signs with large pictures on them."

"Vibrant. I read food labels closely so these would definitely interest me."

"The food looks good. And the ingredients sound healthy."

"They are brightly colored and show, at times, an irony."

"They are huge pictures with simple text and are sequenced from one side to the other, so as you're walking down the aisle you probably would read them and think."

Personal Preference

"At least the first one would."

"Large images of snack foods tend to catch my attention."

7 responses   No

Why?

Ignore Ads/Displays

"I tend to ignore large banners."

Lack of Interest

"They say what I would expect banners advertising unhealthy foods to say."

"Because of the fact that I don't know all of the ingredients. Also, if you eat things in moderation it will not seem as bad."

"I don't look at [displays like that]; I tend to plan what I want ahead of time."

"I don't really pay attention if an item is natural or not, just if I want it."

"Usually when I am grocery shopping I know exactly what I want and am going to get."

Question 6   **Please list any suggestions you have to make these banners more effective.**

Stronger Message

"Personally, I would have the text in Part A read 'Is this *natural*?' Phrasing it as a question might be more engaging and capture people's attention more than a simple statement."

"Pick the one food made different ways. It does show how it can be natural and change, yet still be considered natural. It makes you want to think about what you buy more."

"Having them in a series within an aisle would really get the message across (looking at each of the banners as you went down the aisle, and then having the banner with the message at the end of the aisle)."

Improved Aesthetics/Physicality

"More focus on typography and some more appealing food. Good-looking food will appeal better to shoppers."

"Make the banner with the statement a little more engaging by changing the font and/or adding a small symbol for the group advertising. The negative aspect in parentheses should be more distinct."

"I might like the banners more placed on the floor or modified to a smaller size, because the banners placed right beside the shelves really block my way and my view."

"I am not a fan of the text placement. Or the font."

"Flashing lights?"

More Truthful

"Give a reason why potato chips are not natural. Frying potatoes seems pretty natural."

"Don't lie."

"Being honest about the products could be the best way to make the banners more effective since consumers don't usually like to be lied to or misled."

Positive Feedback

"I think that the banners would be a very effective method of getting the point across."

"They would be very hard to miss, and I think people would take a moment to look at them and read them without really even thinking about it."

"I feel that they are very eye-catching and I would look at them."

Retrospective Evaluation
Conclusions

Part A
Natural

The majority of students who participated in the electronic evaluation were able to correctly identify the main goal of the banner systems and determine that the word *natural* is unregulated. This indicates that the intended educational message was clearly stated and effectively communicated. The responses to the questions about banner system preferences showed some interesting trends. When asked about which banner system they liked the best in Part A (referring to the natural banners), twelve people said Banner System 1 and twelve said Banner System 2. Most participants attributed their choice to the stronger correspondence between the text and the imagery, which contributed to more convincing messages in these systems. Similarly, the majority of respondents felt Banner System 3 was the least successful because they felt the message wasn't conveyed as clearly. Some people questioned the credibility of the message, and one person said that he "found it to be the least honest of the three."

Almost all respondents agreed that the images used in the three systems complemented the text, though several people believed that the pictures of "junk food" (such as cheese puffs, jelly beans, and chips) seemed out of place in association with the word *natural*. This is a reasonable conclusion to make, since it is hard to imagine these processed products being sourced from nature. However, the banners show, that despite this common belief, any of those products could be labeled *natural*. At least one student realized this, which is evident from his response: "The ones with the junk food [seem out of place]. I think this is the point though."

In response to question 7, *If you were grocery shopping, would these banners catch your attention?,* eighteen people answered yes. Their written responses were split between educational and aesthetic reasons. Some said that they would notice the banners because they contradicted their previous beliefs about packaged food, while others were struck by the bright colors, large format, and vibrant images. The remaining seven said that the banners would not catch their attention, mainly because they tend to ignore advertisements/displays in the grocery store or they are focused shoppers who solely concentrate on the items they previously planned on purchasing.

Part B
Featured Ingredients

Similar to Part A above, nearly all evaluation participants correctly identified the main goal of Banner Systems 4 and 5 as *to show that one package claim doesn't necessarily mean a product is healthy.* However, there was a greater consensus on banner system preferences. Most people preferred System 4 over 5. They noted that System 4 used more commonly seen claims (*no preservatives*, *no trans fats*, and *whole grain*, compared to System 5's *gluten-free*, *real cheese*, and *has Omega-3s*). It was also interesting to see that several participants did not know what Omega-3s are, despite the fair amount of press recently highlighting their health benefits.

Part B (continued)
Featured Ingredients

Most students participating in the retrospective evaluation also said that the banners would catch their attention if they were shopping, citing reasons much like the ones described for Part A (page 145). The final question in the electronic evaluation asked for any further suggestions or improvements. Several students suggested changing the font or text placement and adding even more appetizing images to attract attention. Other responses were categorized as "More Truthful." Despite the fact that all of the claims on the banners were claims taken from actual products, some people did not believe certain claims were true. One person simply stated, "Don't lie." To clear up any confusion and explain the significance of the study, a follow-up email was sent to all participants thanking them and informing them of the goals of the banner systems and the truthfulness of their messages.

Application Strengths

The unusual forms and unexpected placement of these applications within the grocery store context were successful in drawing attention. Because a grocery store is such a busy and crowded place, the use of vibrant images and limited text aided shoppers' needs for quick information. The careful decisions related to typographic hierarchy in each solution also contributed to viewer understanding. Each application has two layers of information: one that is communicated through large type and can be understood with a quick glance, and another in smaller text that requires a minute or two of focused attention. The first layer of meaning is meant to intrigue and draw the viewer in to read the secondary text. Even if a consumer only reads the large text (such as "Natural," "Natural," "Natural," Yup on the natural banner system), they still gain insight on the topic.

Application Weaknesses

A possible weakness for the organic display is its intended placement on the shelves of an endcap. Since endcaps are usually where grocery stores position sale products or featured brands, it is unlikely that a store would be willing to sacrifice such valuable retail space to an educational message. The extremely large size of the natural gateway could also be difficult and expensive to fabricate at full size. Stores may hesitate to accommodate a larger installation that might constrict traffic flow and interfere with aisle maintenance.

Throughout the ideation process, the design applications were modified multiple times to reduce the amount of text and ensure maximum comprehension in a hectic grocery store environment. Because of this, certain applications (such as the banner systems) present over-simplified messages that don't reveal all of the available information about each package claim and the specifics on how and where it can be used on food packages.

Future Refinements

Various pragmatic and functional refinements would need to be made depending on the physical location(s) for each design solution. The bands of the organic endcap display would need to be re-sized to fit the height and width constraints of a specific aisle endcap. The natural gateway might also require its base to be narrowed or widened to fit between two shelving units of an aisle. Although its height was originally intended to extend several feet above the average viewer's head, this may need modification. Information that is too far above eye level may be difficult to read or be simply ignored by some viewers. The sign that is suspended from the ceiling directly behind the initial gateway (please see page 117 for images) may be especially hard to see. This sign could be altered to fit along the sides of the aisle or on the floor behind the first part of the gateway.

In addition, this system of applications has the potential to be expanded for future use. It would be beneficial to modify some of the applications that were set aside earlier on due to time constraints to fit within the current system. The nutrient content claims and health claims banners would only require minor refinements. Some other applications, such as the natural endcap display (please see page 95), may need more extensive modifications, but doing so would strengthen the current system. This endcap communicates information about the word *natural*, but has a different approach to the subject than the banners or the gateway. While these two design applications focus on the fact that marketers can label anything as *natural*, the endcap emphasizes the health aspect, stating that even products coming straight from nature may not be healthy in excess. Introducing facts about the word *natural* in two ways within the same system would likely help more people understand the message than if just one method was used. Finally, it would be helpful to add a source at the end of each message where viewers could go to for further information. In particular, a simple web address that people could access in their free time would reinforce the content and add credibility to the messages presented within the system.

Conclusion

Thesis Study Summary

During the initial phases of this study, there was a greater focus on revealing the differences between truthful and misleading nutritional messages and how each is displayed on food packages. After continued research, it was realized that differentiating between which messages were truthful and which were not wouldn't be a practical or easy undertaking. By primarily concentrating on natural and organic foods, the main goal shifted toward discovering the differences between these products, which then led toward investigating other regulated and unregulated package claims.

Through each of the design applications, this thesis has strived to show the public the varying degrees of government regulation of nutritional claims to help them make more educated buying decisions that could ultimately improve their overall health. Presently, many nutrition experts, doctors, and public health groups are also trying to inform consumers about ways to eat healthier. Often these messages are communicated through the news media, printed publications, and dietary guidelines such as the government's food pyramid. While these avenues of dissemination are certainly helpful, this thesis focused instead on putting information right at the point of purchase: in the grocery store. Having educational materials in physical proximity to food products may have a stronger influence upon consumers' purchase decisions and thus be more valuable.

This thesis study introduced environmental graphic design solutions in alternative physical formats and unexpected viewing contexts throughout the grocery store to attract the attention of shoppers. Although the presence of these solutions may have been surprising, they were carefully integrated within the environment by using physical cues from their surroundings. For example, the organic endcap display was developed for an existing aisle endcap. Building upon common physical structures and cues gives this system flexibility to work across many different stores. Similarly, there are many other locations within a grocery store that could accommodate graphic design applications that were not explored in this thesis study, such as glass deli panels, freestanding refrigerated cases, and conveyor belts at the checkout counter.

Self-Evaluation

This thesis study afforded the opportunity to create educational materials for a personally meaningful topic and simulate the distribution of these messages in a real-life context. The ideation process has allowed the development of conceptually strong design applications, which enabled the designer to realize the importance of methodical and continual refinement while working on an extensive design project. The importance of using design to inform people about critical social issues was also realized. There are many current problems that need public support, such as the increasing amount of carbon dioxide in the atmosphere and the destruction of wildlife habitats, and graphic designers have the opportunity to create materials to help people better understand these causes.

Future Relevance

This thesis study has only begun to investigate ways to help consumers make better food choices. Due to the rising rates of obesity and obesity-related diseases in this country, educating people about potentially misleading food package claims is of utmost importance. Since the majority of participants in both rounds of application testing were not aware of what the various claims meant or whether they were regulated, it is likely that the larger general public is unaware as well. By expanding on this thesis' discoveries related to the success of unexpected form and relevant placement of environmental design applications, designers could use these strategies to inform audiences about other important social issues such as those discussed on the previous page. Additionally, this thesis study has shown the advantage of using a system of graphic design materials to communicate one or more related messages. Although one design solution on its own may be strong, having multiple solutions is a simple way to reinforce the first and enhance audience understanding. Considering ways to present information across a system should be an integral part of the graphic design problem-solving process.

Glossary of Terms
Classified by Discipline

Package Design

Endcap
A shelving unit that is placed at each end of a grocery store aisle, and is often used to promote special or sale products because of its high visibility in the store.

Packaging (package)
The container or wrapping that contains an object or product for storing, transporting, or selling ("Packaging," http://dictionary.reference.com).
Food packaging typically double functions as both a container and a communication device to display appropriate messages about inside contents.

Primary Display Panel (PDP)
The panel of a package that is intended to be seen first by consumers and thus uses visual devices such as high color contrast, large text sizes, and vivid images to draw attention. This is typically located on the front side of a package.

Recognition Elements
Components of a package that allow the consumer to identify and/or recognize the product, such as brand name, product name, and product image.

Graphic Design

Cool Colors
Colors that tend to recede in space and have a soothing effect. They include blues, greens, and purples ("Basic Color," www.tigercolor.com).

Die-cutting
Cutting unique shapes and/or windows out of a paperboard package using sharp steel blades during the print production process. This is done prior to the assembly of the whole package ("Glossary of Printing," http://priorityprinting.ab.ca).

Graphic Design Elements
Components that can be selected, decided, and arranged by a designer to change the meaning of a message, such as color, typography, line and shape.

Graphic Design Principles
A designer can lay out graphic design elements using principles such as visual hierarchy, relative size, and position to achieve an effective and balanced composition.

Ornamental Typeface
A typeface that has decorative elements that distinguish it from upright faces. Display typefaces fall under this category and example faces include Rosewood and Comic Sans MS.

Script Typeface
A typeface that resembles human handwriting and/or cursive writing. It often is slanted and has letters that are connected by a single stroke, which distinguishes it from traditional Roman faces. An example is Mistral (Blackwell 179–181).

Glossary of Terms

Classified by Discipline

Graphic Design (continued)	*Upright Typeface* A typeface that resembles Roman inscriptions, is angular and vertical (Bear). Times News Roman and Univers are two typical upright faces. *Warm Colors* Colors that advance in space and are vibrant and energetic. These include reds, oranges, yellows, and some browns ("Basic Color," www.tigercolor.com).
Consumer Behavior	*Bias* A partiality that prevents objective consideration of an issue, situation, or person. This can influence someone in an unfair way toward a particular view ("Bias," http://wordnet.princeton.edu). *Consumer* A person that acquires goods or services for personal use, without the intention of reselling or using them as raw materials for manufacturing ("Consumer," http://dictionary.reference.com). *Point of Purchase (POP)* Although POP can refer to a larger context such as a store or shopping mall, it usually refers to the area directly surrounding purchasing, such as the checkout counter ("Point of Purchase," www.investopedia.com). *Purchase Decision* A consumer's choice whether to buy a product or not. Emotional, social, psychological, and practical factors all influence this decision.
Nutrition	*Certification* Authentication that a certain fact is true and has been documented as such. In the context of this thesis study, this refers to symbols and statements on food packages that verify a specific claim. Examples include the United States Department of Agriculture (USDA) Organic symbol, the Whole Grains Council stamp, and the Certified Vegan circle. *Conventional (food)* Food that has been grown and manufactured under modern agricultural methods. This may include the use of chemical herbicides, fertilizers, and insecticides to kill weeds and spur plant growth, and antibiotics and growth hormones to stop infection and encourage growth in animals (Parnes). *Featured Ingredients* On the front panel of a food package, these are specific ingredients that are listed and/or highlighted. Examples include whole grains, certain vitamins and minerals, and Omega-3 fatty acids. Food packages may also cite ingredients they do not contain, such as *no trans fats* or *no preservatives*.

Nutrition
(continued)

GMO
Genetically modified organism. An organism whose genetic make-up has been altered by genetic engineering. This practice is becoming more common as scientists find ways to improve agriculture by making pest-resistant plants and disease-resistant animals ("Genetically modified," http://dictionary.reference.com).

Health Claims
"Health claims describe a relationship between a food, food component, or dietary supplement ingredient, and reducing risk of a disease or health-related condition." All health claims must include both a whole food or ingredient and a disease or illness ("Claims That Can Be Made," www.cfsan.fda.gov). "A diet low in sodium may reduce the risk of high blood pressure" is an example of a health claim.

High Fructose Corn Syrup (HFCS)
A liquid sweetener derived from cornstarch by using enzymes to convert the starch into glucose. A second process converts some of the glucose into fructose, resulting in a mixture that is higher in fructose than glucose (hence the name). HFCS is used to sweeten a range of food products because of its low cost and ability to extend shelf life. Despite public opinion that consumption of HFCS leads to obesity, new scientific studies have shown that it is nearly equivalent to cane sugar in calories and fructose content (McLaughlin). Nevertheless, its presence still indicates a highly processed food product.

Hydrogenated Oil
Oil that has had hydrogen added to it to change its chemical structure and make it more solid. As a result of this hydrogenation, the healthy unsaturated fats in the oil are converted into a new fatty acid called trans fat. Trans fats increase LDL (bad) cholesterol and are very unhealthy (Smith).

Natural
In the context of processed food, this term is often intended to refer to products that contain ingredients that have been grown in nature. However, this is a loose term that does not currently have any government regulation on when or where it can be used, except when referring to natural flavors ("Title 21: Food and Drugs") or natural meat and poultry ("Meat and Poultry").

Nutrient Content Claims
Claims on food packaging that state the level of a specific nutrient in a food product. These claims may use terms such as *high, low,* and *free,* or *reduced, more,* or *light* when being compared to another product ("Claims That Can Be Made," www.cfsan.fda.gov).

Nutritional Message Components
Parts of a food package's overall nutritional message. These include health claims, featured ingredients, and certifications such as *USDA Organic.* These components are often found on the primary display panel of a package.

Glossary of Terms

Classified by Discipline

Nutrition (continued)	*Preservatives* Substances that are added to foods to prevent decomposition and extend shelf life. Chemical preservatives, including sulfites, nitrites, and sorbates, are often used in conventional foods to kill microorganisms or prevent the growth of mold ("Preservatives," www.foodadditivesworld.com). *Processed Food* Food products that have been altered in some way from their natural state by adding new ingredients through a manufacturing process, or novel products that are not found in nature and have been created by humans. *Trans Fat* A type of fatty acid that is created through hydrogenating vegetable oil. It does not occur in nature, raises LDL (bad) cholesterol, and increases risk for coronary heart disease. Trans fats can be found in cookies, crackers, pastries, and chips. Since January 1, 2006, the Food and Drug Administration has mandated that all food products list their trans fat content in the Nutrition Facts panel. Because of this, many companies have altered their product ingredients to remove trans fats ("Revealing Trans Fats," www.fda.gov)
Greenwashing	*Green Education* The distribution of messages that promote a company or organization's genuine commitment to sustainable practices and goals in the form of public service announcements, advertisements, or educational materials. *Greenwashing* The practice of using environmentally-friendly descriptions or programs to distract the public from a company's environmentally-unfriendly activities or practices. This term comes from *green* (meaning environmentally-friendly) and *whitewash* (to cover up flaws) ("Greenwash," http://dictionary.reference.com).

Organic Food

Made with Organic Ingredients
Third level of organic certification. A product must contain 70–94% organic ingredients, not counting added water and salt to be classified as such. Must not contain added sulfites, though wine may contain added sulfur dioxide. May contain up to 30% of non-organically produced agricultural ingredients. This product may list up to three organic ingredients on the front panel of the package but may not display the USDA Organic Seal ("Labeling," www.ams.usda.gov).

100% Organic
Strictest level of organic certification. A product must contain 100 percent organically produced ingredients, not counting added water and salt. This product can also display the USDA Organic Seal ("Labeling," www.ams.usda.gov).

Organic
Second level of organic certification. A product must contain at least 95% organic ingredients, not counting added water and salt. Cannot contain added sulfites. May contain up to 5% of non-organically produced agricultural ingredients that are not commercially available in organic form. This product can display the USDA Organic Seal ("Labeling," www.ams.usda.gov).

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Appendices

Appendix A
List of Surveyed Products

Cereals			
	1	All-Natural Whole Soy Nutlettes Cereal	Natural
	2	Barbara's Bakery Organic Wild Puffs, Cocoa	Organic
	3	Benefit Nutrition Simply Fiber Cereal	Natural
	4	Breadshop Ancient Grain Organic Harvest Apple Cereal	Organic
	5	Cascadian Farm Organic Purely O's	Organic
	6	Erewhon Crispy Brown Rice with Mixed Berries	Organic
	7	General Mills Cheerios	Conventional
	8	General Mills Cocoa Puffs	Conventional
	9	Kellogg's Low Fat Granola with Raisins	Conventional
	10	Kellogg's Rice Krispies	Conventional
	11	Nature's Path Organic Peanut Butter Granola	Organic
	12	Nature Valley 100% Natural Cereal, Oats 'n Honey	Natural
	13	Perky's PerkyO's, Original	Natural
	14	Post Honey Bunches of Oats Cereal with Real Peaches	Conventional
	15	Udi's Natural Artisan Granola, Au Naturel	Natural

Granola Bars			
	1	Cascadian Farm Organic, Chocolate Chip	Organic
	2	Country Choice Organic Oatmeal On the Run!	Organic
	3	EnviroKidz Organic Crispy Rice Bar, Berry	Organic
	4	Fiber One Chewy Bars, Oats & Caramel	Conventional
	5	Kashi Tasty Little Chewies, Peanut Peanut Butter	Natural
	6	Kashi Tasty Little Crunchies, Honey Toasted 7 Grain	Natural
	7	Kellogg's Nutri-Grain Cereal Bars, Strawberry	Conventional
	8	Kellogg's Special K Bar, Peaches & Berries	Conventional
	9	Nature's Choice Multigrain Blueberry Cereal Bars	Natural
	10	Nature's Path Organic Granola Bars, Flax Plus Pumpkin	Organic
	11	Nature Valley Crunchy Granola Bars, Oats 'n Honey	Natural
	12	Nature Valley Sweet & Salty Nut Granola Bars, Almond	Conventional
	13	Quaker Chewy Chocolate Chip Granola Bars	Conventional
	14	Quaker Simple Harvest, Cinnamon Brown Sugar	Natural
	15	Save the Forest Organic Trail Mix Bars, Cranberry Crunch	Organic

Crackers			
	1	Annie's Homegrown Cheddar Bunnies	Organic
	2	Annie's Homegrown Organic Cheddar Bunnies	Organic
	3	Blue Diamond Natural Almond Nut-Thins	Natural
	4	Doctor Kracker Pumpkin Seed Cheddar Flatbreads	Organic
	5	Good Health Cheddar Guppies	Natural
	6	Health Valley Low Fat Whole Wheat Crackers	Natural
	7	Hot Kid Rice Crisps, Natural	Natural
	8	Kashi Tasty Little Crackers, Fire Roasted Vegetable	Natural
	9	Keebler Wheatables, Toasted Honey Wheat	Conventional
	10	Late July Organic Classic Rich Crackers	Organic
	11	My Family Farm Cheddar Cheese Baked Crackers	Organic
	12	Nabisco Ritz Crackers	Conventional
	13	Nabisco Triscuit, Garden Herb	Conventional
	14	Nabisco Wheat Thins Baked Snack Crackers, Original	Conventional
	15	Pepperidge Farm Goldfish, Cheddar	Conventional

Chips	1	Boulder Canyon Sea Salt & Cracked Pepper Potato Chips	Natural
	2	Cheetos, Crunchy	Conventional
	3	Doritios, Cool Ranch	Conventional
	4	Garden of Eatin' Blue Chips	Organic
	5	Kettle Brand Chips, Organic Sea Salt & Black Pepper	Organic
	6	Kettle Brand Chips, Sea Salt & Vinegar	Natural
	7	Lay's Potato Chips, Barbecue	Conventional
	8	Little Bear Crunchitos, Extra Cheddar	Natural
	9	Michael Season's Lite Cheese Curls, Cheddar	Natural
	10	Pringles, Salt & Vinegar	Conventional
	11	Salba Smart Organic Tortilla Chips, Yellow Corn	Organic
	12	Snikiddy Organic Mac n' Cheese Puffs	Organic
	13	Utz Natural Kettle Cooked Gourmet Potato Chips	Natural
	14	Utz Sour Cream and Onion Potato Chips Ripple Cut	Conventional
	15	Wise All-Natural Potato Chips	Natural
Cookies	1	Country Choice Organic Snacking Cookies, Ginger Snaps	Organic
	2	Crummy Brothers Organic Chocolate Chip Cookies	Organic
	3	Hain Kidz Chocolate Animal Cookies	Natural
	4	Healthy Handfuls Koala Krackers, Lemon Vanilla	Organic
	5	Kashi Tasty Little Cookies, Oatmeal Dark Chocolate	Natural
	6	Keebler Fudge Shoppe Peanut Butter Sticks	Conventional
	7	Late July Organic Dark Chocolate Sandwich Cookies	Organic
	8	Mi-Del Ginger Snaps	Natural
	9	Nabisco Chips Ahoy! Chewy	Conventional
	10	Nabisco Oreo Chocolate Sandwich Cookies	Conventional
	11	Nabisco Reduced Fat Nilla Wafers	Conventional
	12	Nabisco Snack Well's Devil's Food Cookie Cakes	Conventional
	13	Nana's Cookie Bars, Apple & Oats	Natural
	14	Newman's Own Organic Champion Chip Cookies	Organic
	15	Pamela's Products Pecan Shortbread Gourmet Cookies	Natural
Yogurt	1	Breyer's YoCrunch Lowfat Yogurt, Vanilla with Reese's	Conventional
	2	Brown Cow Cream Top Strawberry Yogurt	Natural
	3	Dannon Light & Fit Nonfat Yogurt, Strawberry Kiwi	Conventional
	4	Fage Greek Strained Yogurt, Total 2%	Natural
	5	Hawthorne Valley Farm Whole Milk Yogurt, Plain	Organic
	6	Horizon Organic Fat-Free Yogurt, Vanilla	Organic
	7	Nancy's Organic Nonfat Yogurt, Plain	Organic
	8	Silk Cultured Soy, Blueberry	Conventional
	9	So Delicious Cultured Coconut Milk, Vanilla	Natural
	10	Stonyfield Farm All-Natural Nonfat Yogurt, Strawberry	Natural
	11	Stonyfield Farm All-Natural O'Soy Cultured Soy, Vanilla	Natural
	12	Stonyfield Farm Organic Lowfat Yogurt, Strawberry	Organic
	13	Wallaby Organic Yogurt, Vanilla	Organic
	14	Weight Watchers Nonfat Yogurt, Berries 'n Cream	Conventional
	15	Yoplait Original Lowfat Yogurt, Strawberry	Conventional

Frozen Dinners	1	Amy's Macaroni & Cheese	Organic
	2	Amy's Pizza, Cheese	Organic
	3	Boca Meatless Chili	Conventional
	4	Celentano Manicotti Without Sauce	Natural
	5	Health is Wealth All-Natural Thai Spring Rolls	Natural
	6	Helen's Kitchen Thai Yellow Curry	Organic
	7	Kashi All-Natural Five Cheese Tomato Pizza	Natural
	8	Kashi All-Natural Garden Vegetable Pasta	Natural
	9	Kashi All Natural Sweet & Sour Chicken	Natural
	10	Kid Cuisine Twist & Twirl Spaghetti with Mini Meatballs	Conventional
	11	Rising Moon Organics Organic Manicotti with Sauce	Organic
	12	Seeds of Change Certified Organic Spicy Peanut Noodles	Organic
	13	Stouffer's Lean Cuisine Shrimp & Angel Hair Pasta	Conventional
	14	Tony's Original Crust Four Cheese Pizza	Conventional
	15	Weight Watcher's Smart Ones Fruit Inspirations	Conventional

Appendix B

MFA Thesis Exhibition Panel System

Deception or Truth

Definition

Precedents

Research

Synthesis

Ideation

Solutions 1

Solutions 2

DECEPTION OR TRUTH?

ALL NATURAL

MADE WITH ORGANIC PASTA

with **Whole Grain**
Guaranteed

Sensible Solution
• 0g Trans Fat
• 100 Calories
• No Cholesterol
Per Pack

30g
WHOLE GRAIN
PER SERVING

12 VITAMINS & MINERALS

90 Calories

ALL NATURAL WHOLE SOY™

No trans fats, No Hydrogenated Oils
No Preservatives,
No Corn Syrup

ALL NATURAL

NEW LOOK!
Still No Sugar

May Reduce The Risk Of
Heart Disease & Some Cancers

ORGANIC·100%
WHOLE GRAIN

✓ NO TRANS FAT
✓ LOW FAT

lowfat

ORGANIC

Gluten &
Nut FREE

35% of the
Daily Value of
Fiber

GOOD SOURCE OF CALCIUM &
VITAMIN D

All-Natural Baked Snack Crackers
NO ICKY ADDITIVES OR PESKY PRESERVATIVES!

NO PRESERVATIVES

ORGANIC

Bias In Visual Communication
Truth and Deception in Food Package Design

Terry Ann Hayes
MFA Candidate
Graphic Design

NATURAL

Fact
Food manufacturers commonly market their products as healthy by putting claims on their packages to encourage people to purchase them.

Problem
These products are not always healthy and some of the claims are entirely unregulated. Consumers often don't understand what the claims mean or whether or not they are regulated.

Problem Statement

The definition of the word *green* has acquired many new meanings in the last several decades. In addition to referring to color or implying inexperience, green often signifies healthful and nutritious food, in part because of its direct color association with many fruits and vegetables. Since consumers today are becoming more health conscious in light of America's growing obesity epidemic, food companies often feature and promote the healthfulness of their products. These messages are frequently communicated by the food packaging itself, because packaging is a major influence on a shopper's perception of the food inside. The design of the food package, comprising both the two-dimensional surfaces and overall three-dimensional form, conveys these messages through variables related to color, imagery, typography, language, and shape.

This thesis primarily examines organic and *natural* food packaging to uncover how healthfulness is communicated in each product category. Graphic design variables promoting healthfulness are analyzed in conjunction with actual nutritional information to discover their congruency. These findings will be significant in conceiving an ideal solution(s) for educating the public about the use of nutritional messages on food packaging.

Relevance and Importance

It is vital to understand how marketers are using message-making strategies to accurately or deceptively promote the healthfulness of their products, especially considering that packaged food is generally less nutritious than fresh food and often makes up a large share of the average person's diet. This thesis study investigates how graphic designers, in conjunction with food marketers, can employ various strategies to truthfully communicate a product's healthfulness. Doing so will positively impact consumers' choices of nutritious foods.

Explanatory Diagram

This diagram visually shows the connections and relationships between each of the disciplines and sub-disciplines included in this thesis study.

Key Questions

1 What is the congruence between a package's message and the nutritional content of the food? For example, does the phrase *100% natural* on a box of granola bars correspond with an ingredients list that contains several items that are not found in nature?

2 How do green education and greenwashing apply to nutritional message-making?

3 How does food package design display these messages?

4 What is the relationship between a package's main display panel and the adjoining secondary panels? What sort of information is typically presented on each type of panel?

5 How can graphic design variables be used on natural and organic food packaging to accurately display its nutritional information?

Associated Areas of Study

Package Design	Ethics
Nutrition	Cognitive Psychology
Marketing	Behavioral Psychology
Information Design	Consumer Behavior

Focus
This thesis primarily concentrates on organic and natural products to discover how nutritional messages are displayed on their packaging.

Precedents
Important Case Studies

"Traffic Light" Labeling

This color-coded system was developed by the United Kingdom's Food Standards Agency (FSA) to help consumers quickly see the amount of total fat, saturated fat, sugar, and salt in packaged products. The FSA suggests that the general public decrease their daily intake of these nutrients to maintain a healthy diet.

This system provides a useful model for how to simplify complex nutritional information. However, the traffic light system does not have a standardized visual strategy, since each company can choose how to show this information on their packages as long as the four nutrients and colors are displayed. This potential variation could ultimately be confusing to consumers.

Color	Food's Nutrient Content
Red	High
Yellow-orange	Moderate
Green	Low

A food with more green lights is generally considered healthier than one with more red lights.

The Six Sins of Greenwashing

TerraChoice, a marketing agency specializing in environmental sustainability, did extensive market research to discover whether green message-making claims were truthful or not. All but one of the 1,018 products they surveyed had false or misleading claims. As a result, they created the "Six Sins of Greenwashing" to categorize these claims and educate consumers. These sins have been applied to nutritional message-making below.

This pie graph illustrates the products from TerraChoice's investigation that fit into each greenwashing category.

1 **The Sin of the Hidden Trade-Off**
A claim that a product is green based on one factor, while ignoring more important issues.
Example: "High fiber" granola bars that contain many processed ingredients and sweeteners and have chocolate as the first ingredient.

2 **The Sin of Vagueness**
A claim that is not clearly defined and can easily confuse the consumer.
Example: "Natural" Cheetos, which are definitely not grown in, or directly sourced from, nature.

3 **The Sin of Irrelevance**
When a product makes a truthful claim that is unimportant to its overall sustainability.
Example: Labeling cookies as vegetarian. Cookies don't usually contain meat, and this may distract consumers from the fact that the cookies themselves are not particularly healthy.

4 **The Sin of Fibbing**
A claim that is simply not true, and doesn't have evidence to back it up.
Example: An "organic" product with a false certification.

5 **The Sin of No Proof**
A claim whose supporting evidence is not readily accessible or available to the public.
Example: A health claim that requires extensive research to verify.

6 **The Sin of Lesser of Two Evils**
A claim that is true, but serves to distract consumers from the fact that the category of products is not environmentally-friendly.
Example: Toaster pastries without trans fats. These still contain high amounts of sugar, and the claim may distract from the fact that toaster pastries in general are not very nutritious.

In Defense of Food: An Eater's Manifesto, Michael Pollan

Author Michael Pollan has a strict view on what Americans should be eating every day, but his advice is relevant to this thesis study because he warns readers about the dangers of packaged food. *In Defense of Food: An Eater's Manifesto* begins with: "Eat food. Not too much. Mostly plants." To explain these somewhat puzzling sentences, he offers several recommendations.

Should these be considered food?

Don't eat anything your great-grandmother wouldn't recognize as food.
Pollan discusses that the transition of food from nature-made to man-made has been happening gradually since the 19th century. Therefore, to ensure that one's diet is as unprocessed as possible, if someone a century ago would not recognize a product, it's probably not a good idea to eat it. For example, would a person living during the late 1800s know what Cheetos are? What about "milk and cereal" breakfast bars? Fruit Roll-Ups? Though these items are part of today's food vocabulary, they would be completely foreign entities to someone living 100 years ago.

This nutrient content claim doesn't necessarily mean that these granola bars are healthy.

Avoid food products that make health claims.
As discussed in the problem statement of this thesis, health claims, nutrient content claims, or any other sort of food package claims should not always be taken at face value. The FDA authorizes claims on many substances, including *qualified* claims that allow food manufacturers to put claims that have only preliminary scientific support on their packages. Most food products, even those that can barely be considered food, are legally eligible for some sort of claim.

Appears healthy, but actually contains about 40 ingredients, including such suspicious items as azodicarbonamide and ethoxylated mono- and diglycerides.

Avoid food products containing ingredients that are A) unfamiliar, B) unpronounceable, C) more than five in number, or that include D) high-fructose corn syrup.
Though Pollan explains that none of the above recommendations are extremely dangerous, each of them indicates a food that has gone through significant processing, changing it from a real food to more of a foodlike-substance. He gives the example of bread, which most people would think of as a simple food with few ingredients. In reality, a processed bread such as Sara Lee's Soft & Smooth Whole Grain White Bread has about forty ingredients, including such unpronounceable and unrecognizable items as "ethoxylated mono- and diglycerides," "azodicarbonamide," and "calcium propinate." The ingredients list also includes high-fructose corn syrup.

Food Package Claims
Regulated and Unregulated

Health Claim
May Reduce the Risk of Heart Disease
and Some Cancers

Nutrient Content Claim
14g of Fiber (56% of RDA)

Natural
All Natural Crunchy O's Cereal

Featured Ingredient
Excellent Source of Whole Grains

Regulated Claims

Nutritional claims on the front of packages are an easy way for marketers to communicate the benefits of their products to consumers. The U.S. Food and Drug Administration (FDA) regulates the use of three types of claims that can be printed on food packaging. Both the FDA and the manufacturer of the food product are responsible for ensuring that these claims are accurate.

Health Claims
These statements indicate a relationship between a certain food or ingredient and a lowered risk for a disease or other type of health condition. To qualify, the statement must mention both a food or ingredient and a health-related condition. An example is "Diets low in sodium may reduce the risk of high blood pressure, a disease associated with many factors."

Nutrient Content Claims
These claims apply to nutrients with established daily values. These nutrients appear on the Nutrition Facts panels of food packages. The claims can either state the level of a nutrient in a food (0 grams of fat) or use the words *free, low,* or *high* (low fat, high fiber). When the amount of a nutrient in one food product is being compared to the amount of the same nutrient in another, terms such as *more, reduced,* or *light* can also be used.

Structure/Function Claims
These types of claims indicate the effect that a food or ingredient has on normal body composition or function. "Calcium builds strong bones" is a common structure/function claim. These claims may appear on foods and as well as dietary supplements such as vitamins (*www.cfsan.fda.gov*).

Organic Certifications

100% Organic
"Products labeled as *100 percent organic* must contain (excluding water and salt) only organically produced ingredients and processing aids." These products may display the USDA Organic seal and the seal of the certifying agent. They may also use the term *100% organic* as part of the product's name.

Organic
"Products labeled *organic* must consist of at least 95 percent organically produced ingredients (excluding water and salt)." All other ingredients must be unavailable in organic form. These types of products can show both the USDA Organic seal and the seal of the certifying agent on their packages. The word *organic* may be used in the product's name.

Made with Organic Ingredients
"Processed products that contain at least 70 percent organic ingredients can use the phrase *made with organic ingredients* and list up to three of the organic ingredients or food groups on the principal display panel." However, the package may not contain the USDA organic seal, but it can show the certifying agent's seal.

Contains Some Organic Ingredients
In this case, the word *organic* may not be used on the front panel. Specific ingredients can be designated as *organic* in the ingredients list on a secondary panel. Furthermore, neither the USDA Organic or certifying agent seals may be shown anywhere on the packaging (*www.ams.usda.gov*).

Unregulated Claims

Natural Claims
The word *natural* has become increasingly popular over the last few years on all sorts of food products as the number of health-conscious consumers has risen. People equate *natural* with nature, and since nature means healthy to many, sales of natural products have been increasing. However, there is barely any regulation on the word natural, thus its presence on food packages can mislead consumers if they do not check the ingredients list or Nutrition Facts.

There are two minor government restrictions on the use of the word natural, in conjunction with flavors and meat products. In order for a food to list an ingredient as a *natural flavor,* it must be derived from a fruit, vegetable, spice, plant material, meat, seafood, or dairy product.

According to the USDA Food Safety and Inspection Service, certain poultry and meat products can be labeled as natural if they contain no artificial ingredients or added colors and are only minimally processed (*www.fsis.usda.gov*).

Featured Ingredients
These are specific ingredients that are listed or highlighted on the front panel of a food package. Common examples include whole grain, certain vitamins and minerals, and omega-3 fatty acids. Food packages may also display ingredients they do not contain such as "no trans fats" or "no preservatives." They are unregulated by the government, so food manufacturers can highlight any ingredient they choose.

Synthesis
Analyzing Food Packages

Organic Claim

Typography	Serif, upright typeface, bold
Color	Polychromatic, warm color, cool color, green
Shape	Rectangular
Edge	Simple
Line	Thin, angular line, one line

Featured Ingredient

Typography	Sans-serif, upright typeface, bold, uppercase
Color	Polychromatic, warm color, cool color
Shape	Other (banner)
Edge	Simple

Certification

Typography	Sans-serif, upright typeface, bold, uppercase
Color	Polychromatic, warm color, cool color
Shape	Circular
Edge	Simple
Line	Heavy, angular line, one line

Elements Used on Packages for Nutritional Messages

The synthesis section of the thesis study focused on several matrices which were created in order to cross-reference and examine existing packaging examples. The matrices then allowed conclusions to be drawn about the examples and guided further research.

To complete the investigation, food packages were organized into seven categories: cereals, crackers, chips, granola bars, cookies, yogurts, and frozen dinners. To ensure a representative sample, an equal number of natural, organic, and conventional products were selected for each category. Following the analysis of the individual packages, the data was compiled into a single matrix to identify any existing trends.

A sample analysis from one of the matrices is shown above. It examines nutritional message components on the food package (organic claim, featured ingredient, and certification) in comparison to graphic design elements such as typography, color, shape, and line. Each graphic design element was also analyzed through several design variables. For example, variables under typography included sans-serif or serif, bold or light, and upper or lowercase.

Conclusions

In general, nutrient content claims (NCC) were more common on healthier food products such as cereals, yogurts, and frozen dinners, whereas the less healthy ones (cookies, crackers, and chips) had more featured ingredients. It may be more difficult for less healthy products to show a NCC since they are based on established daily values, and unhealthy products are less likely to qualify for those. Instead, these unhealthier products displayed many more featured ingredients. Since these are unregulated, food marketers are usually able to find at least one desirable ingredient that they can highlight.

The matrix described above revealed a large number of both NCC and featured ingredients for the cereals. The NCCs were typically printed in a bold, sans-serif, upright typeface in multiple cool colors. They also tended to appear inside shapes (usually banners) with simple edges. The featured ingredients were also bold and sans-serif in an upright typeface, but they were more likely to be displayed in a warm color without any shape around them.

Ideation
Brainstorming Solutions

Research Discoveries

There are a variety of claims that can appear on food packaging. Some of these claims are strictly regulated by the U.S. government, whereas others have little or no regulation.

Most to Least Regulated Food Package Claims
- Organic
- Nutrient Content Claims, Health Claims, and Structure/Function Claims
- Natural
- Featured Ingredients

Making Connections

The ideation phase connects research findings and conclusions from the various matrices in useful ways that can be shared with a larger audience. All solutions generated share the goal of educating the public about nutritional message components on food packages. A range of preliminary ideas were created and, following this initial exploration, the strongest concepts were chosen to be fully developed and tested with a sample audience.

Possible Store Locations

Store Aisles   *Store Entrance*   *Store Floor*

Store Checkout   *Attached to Carts*   *Online*

Preliminary Concepts

Endcap Display

Endcap, front view   *Endcap, perspective view*

This display shows that the word *natural* doesn't always imply healthfulness by displaying three *natural* ingredients that are very unhealthy in large amounts. Each individual sign is intended to span two sides of an aisle endcap to attract attention and entice potential readers.

Banner System

This system of banners is meant to challenge people's beliefs about what can be considered natural. The banners would be placed in particular sequences along specific grocery store aisles.

Package Signs

These signs mimic the look of a cereal box, but each explains a specific type of nutritional claim (featured ingredients, nutrient content claims, and health claims). They would be placed near the cash registers so that consumers could read them while waiting in line to check out.

Informational Gateway

This large aisle display would catch people's attention and show them that the word *natural* can represent a range of ideas.

Final Solutions

The final applications chosen for this investigation will take the form of a system of signs and/or displays that will be placed in grocery stores. These educational materials will offer information about which types of food package claims are regulated and which are not. The solutions with the greatest perceived value to consumers and this thesis project will be chosen to be fully developed and evaluated with sample audience.
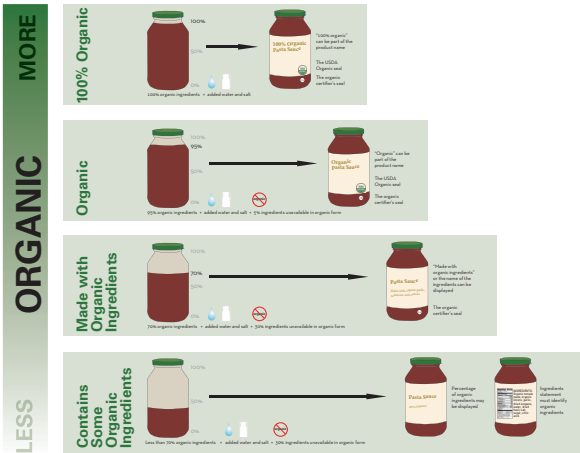
In-Progress Solutions

Banner System

The purpose of these banners is to challenge consumers' views about what can constitute *natural*, and to show that anything can be labeled as natural. The banners would be placed in particular sequences along specific grocery store aisles.
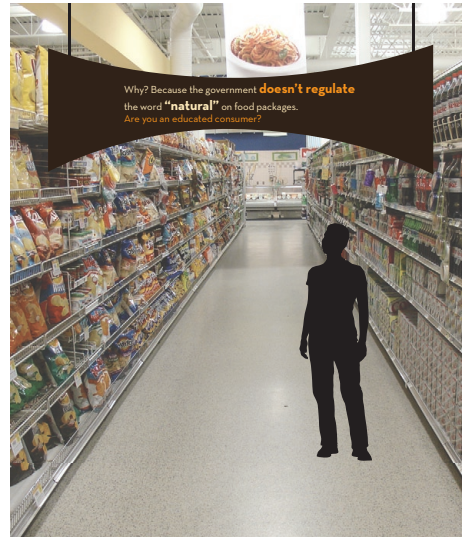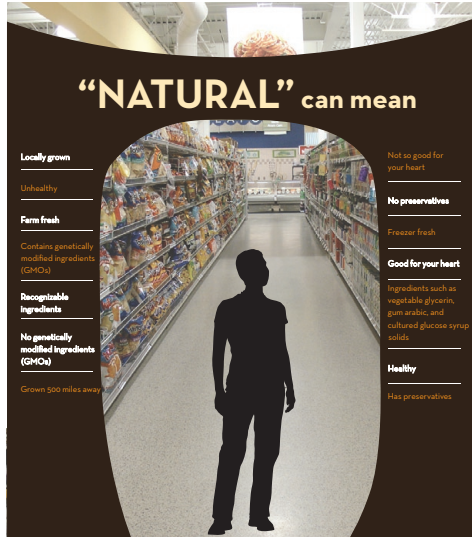
Endcap Display

This display is intended to be placed on multiple shelf levels of an aisle endcap. Many people do not know the differences between each degree of organic certification, so this solution explains them in an easy-to-read, visual manner to encourage more educated choices when they buy organic products.

In-Progress Solutions

Informational Gateway

This large aisle display would ideally attract consumer attention and enlighten them to the fact that the word *natural* can represent anything.

The large initial gateway would be positioned at the end of an aisle. The secondary hanging banner would only be visible once the viewer had stepped through the larger gateway.