ABSTRACT

CRONEBERGER, EMILY R. Consumer Perceptions of Eco-labels. (Under the direction of Dr. Lisa Parrillo Chapman).

The primary research question that this research sought to answer was, "are eco-labels important to consumers?" The four types of sustainable initiatives that were depicted on the labels included product disposal, reduction in energy and water use, and organic materials in the life cycle of jeans. Consumer perceptions were measured for four different Levi Strauss denim labels. The five sub-objectives of the research were to determine: (1) the importance of eco-labels to consumers, (2) which label is best/least understood by consumers, (3) which label's environmental message is most/least important to consumers, (4) the consumer's perceptions of the effectiveness of the label in reducing environmental impact, and (5) the likelihood that consumers will follow directions on post-purchase labels. A convenience sample of students from North Carolina State University's College of Textiles were surveyed using a quantitative survey instrument. Results showed that the Organic label was rated the highest for understanding and importance of environmental message. The Waterless label was rated the lowest for understanding, importance, and effectiveness. The Care to Air label was rated highest for the ability to reduce environmental impact, while respondents indicated they would be most likely to follow the directions on the Care Tag for Our Planet label.

Consumer Perceptions of Eco-labels

by
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DEDICATION

This research is dedicated to my parents, Randy and Rebecca Peterson. They have given me complete support and encouragement throughout the process. I also want to thank my husband, Tyler Croneberger, for his full support and patience. This research would not have been possible without my loving family.

BIOGRAPHY

Emily R. Croneberger was born on September 1, 1988 in Durham, North Carolina. She grew up in Cary and attended Cary High School, graduating in 2006. After high school, Emily attended North Carolina State University's College of Textiles and received her Bachelor's degree in Textile and Apparel Management with a concentration in Fashion Development and Product Management. Emily graduated with the third highest GPA in her concentration.

In August of 2010, Emily began her graduate studies at North Carolina State University to earn her Master of Science in Textiles degree. During graduate school, she was a Teaching and Research Assistant. In her undergraduate studies, her interest in sustainability grew as she learned more about sustainable apparel in the textile industry. She chose sustainability as her focus in graduate school in hopes of learning more about sustainability from the consumer perspective.

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There are many people I would like to thank for helping me throughout this research process.

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I would also like to thank the professors who allowed me into their classrooms to survey their students. I greatly appreciate their support.

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GLOSSARY OF TERMS

Cotton Incorporated Lifestyle Monitor: An ongoing research program that utilizes a carefully constructed series of more than 100 questions in order to understand the attitudes and behavior of American consumers regarding clothing, performance, appearance, fashion, environment, home furnishings, shopping, and fiber selection, among other topics (Cotton Incorporated, 2012).

Eco-labeling: Making relevant environmental information about a product available to the appropriate consumers through the product label to promote an environmental goal, cause or objective through consumer choice. (Banerjee & Solomon, 2003, p.109)

Environmental Impact: Any positive or negative change to the environment or the global system including air, water, land, flora, fauna, as well as human beings (ISO 14001, 2004, p. 1).

Federal Trade Commission (FTC): The FTC pursues vigorous and effective law enforcement; advances consumers' consumers' interests by sharing its expertise with federal and state legislatures and U.S. and international government agencies; develops policy and research tools through hearings, workshops, and conferences; and creates practical and plain-language educational programs for consumers and businesses in a global marketplace with constantly changing technologies (FTC, 2011).

Green Blur: Identified by Cotton Incorporated, Green Blur occurs when there is a potential for misunderstanding terminology and words are subsituted for one another. Accurary and nuancy is lost (Thomas, 2008, p.528).

Green Guides: The Green Guides address the application of Section 5 of the FTC Act to environmental advertising and marketing practices. These guides apply to environmental claims included in labeling, advertising, promotional materials and all other forms of marketing, whether asserted directly or by implication, through words, symbols, emblems, logos, depictions, product with such laws by members of industry (Clark, 2010).

International Organization For Standardization (ISO): The world's largest developer of International Standards. The ISO enables a consensus to be reached on solutions that meet both the requirements of business and the broader needs of society (ISO, 2011, p.1).

Sustainability: Meeting the needs of the present without compromising the ability of future generations to meet their own needs (World Commission on Environment and Development, 1987, p.24).

Chapter 1: Introduction

1.1 Introduction

As the demand for sustainable apparel products is becoming more widespread, the demand for eco-labeling has increased as well. Whether a company uses an eco-label or a certification mark, both labels and certification marks are used as tools for companies. Labeling systems are meant to inform consumers of the environmental impact of a product and though many companies use eco-labels as a display of their sustainability efforts, there is the possibility that companies could inadvertently or purposefully misuse labels in order to deceive consumers for profits.This literature review will give an overview of eco-labeling by first discussing sustainability, followed by an overview about eco-labeling in the apparel market, which summarizes the relevance and benefits as well as current eco-label categories. This literature review section will also highlight the need for standardizing eco-labels and the drivers behind this need and finally, discuss consumer behavior as it relates to eco-labeling efforts for apparel.

1.1.1 Sustainability

The term *sustainability* has many different meanings associated with it, however, when discussing sustainability in relation to the environment, the definition that is most widely accepted is the definition that was given from the Brundtland Commission report. The definition defines sustainability as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (Baxter, Boisvert,

Lindberg & Mackrael, 2009). The report that introduced this definition brought a new way of thinking about how humans affect the environmental systems and identified what needs to change in order for people, companies and organizations to become sustainable (Baxter, Boisvert, Lindberg & Mackrael, 2009).

Sustainability relates to the environmental impact that companies and people influence. According to the International Organization for Standardization (ISO), environmental impact is defined as any positive or negative change to the environment or the global system "including air, water, land, flora, fauna, as well as human beings" (ISO 14001, 2004, p.1). Hart explains that environmentalists created an equation for environmental impact: the total environmental impact (I) is comprised of three factors: population (P), affluence (A), which relates to consumption, and technology (T), which is how wealth is created (2010). The environmental impact of human activity is expressed from the following formula: I = P x A x T (Hart, 2010, p. 51). In order to achieve sustainability and reduce the environmental impact on planet Earth, the population must decrease, the level of affluence (consumption) must be lowered, or technology that is used to create wealth must be changed, "effectively moving technology (T) into the denominator of the formula" (Hart, 2010, p. 51). Hart explains that it is essentially impossible to decrease the population. Though the rate of population growth is slowing, the rate is expected to stabilize between eight and ten billion people in the mid-century. Decreasing the level of affluence, or consumption, is also difficult because it has been shown that poverty and an increasing population have a positive correlation, therefore making sustainability a difficult goal to obtain. Stabilizing the

population would require educating the poor and improving their economic standing (Hart, 2010). The third option is to change the technology that is currently being used to create products that are used to create wealth. Hart writes that innovation is the key for sustainable development, and the current way of doing things must change in order for the environmental impact to be reduced (Hart, 2010).

Hart also created a framework for sustainable value. Four strategies are presented, two that are relevant for today's society, and two that look to the future. Clean technology is an internal strategy that is aimed for the future. The base of the pyramid relates to meeting the unmet needs of the lowest economic tier, and is an external strategy that is a strategy for the future. Product Stewardship is an external strategy for the present and finally, pollution prevention is an internal present strategy to reducing waste and emissions (Hart, 2010). Figure 1 illustrates the sustainable value framework. Sustainability is important for understanding the purpose of eco-labels, and the following section will discuss eco-labels and their role with sustainability.

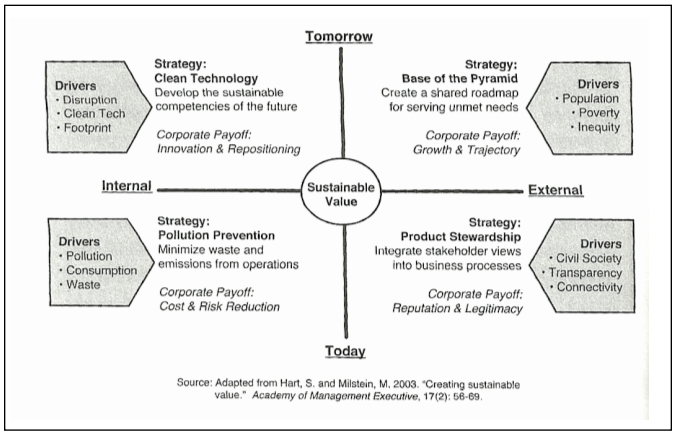

Figure 1: **Sustainable Value Framework** (Hart, 2010)

1.1.2 Eco-label Overview

The term *eco-label* has been defined in many different ways by multiple authors, for example, Bernhard Truffer, Jochen Markard and Rolf Wüstenhagen (2003), Camilla Erskine and Lyndhurst Collins (1997), and Galarraga Gallastegui (2002) all give insights as to what an eco-label is. While there are variations in each of the definitions, there are underlying similarities in each authors' statement. Truffer, Markard and Wüstenhagen's definition, as quoted by Banerjee & Solomon (2003), states that eco-labeling is defined as "making relevant environmental information about a product available to the appropriate consumers through the product label to promote an environmental goal, cause or objective through consumer choice" (2003, p. 109). Erskine and Collins explain that eco-labeling is an important tool used to raise the awareness of consumers and producers to be environmentally responsible with regards to natural resources and waste minimization (1997). Both definitions point to the importance of consumer awareness and choice based on environmental attributes. Gallastegui's statement is similar: "eco-labeling seeks to inform consumers about the effects on the environment of the production, consumption and waste phases of the products/services consumed" (2002, p. 316).

While the definitions of eco-labels primarily focus on the consumer, the manufacturer is also important in defining the eco-label's purpose. Gulbrandsen writes that eco-labels "compare similar products within a category and authorize manufacturers to label the most environmentally friendly in terms of the product's whole life cycle" (2006, p.477). This explanation unveils the benefit of the manufacturer, which is to gain competitive advantage

through labeling. Gulbrandsen's definition of eco-labeling points to what Garth Hickle calls *Product Stewardship* (2007). Product Stewardship "emphasizes encouraging or requiring manufacturers to assume end-of-life management responsibility for their products as a key strategy for reducing the overall environmental impacts of those products" (Hickle, 2007, p. 2). This strategy highlights the importance of manufacturers to take responsibility for their environmental impact (Hickle, 2007). An eco-label serves as a way for manufacturers to identify their products as environmentally friendly, and thus convey their responsible actions to the consumer.

Wynne's study in 1994, as cited by Ibanez and Grolleau (2007), points out that eco-labels have two major extremes. At one end, eco-labels are "labels issued by independent organizations and displayed voluntarily by [manufacturers] who submit to inspection or in some other way meet the organizations' environmental or advertising standards", while at the opposite end, eco-labels are simply unclear, vague, or undefined claims related to environmental friendliness (Ibanez & Grolleau, 2007, p.235). Though the term *eco-label* may be defined in many ways, the two critical points identified from a review of the literature are the fact that labels impact consumer awareness and/or purchase behavior, and labels also can impact the manufacturer's environmental decisions. The purposes and benefits of eco-labeling will be further discussed in the following section.

Chapter 2: Literature Review

2.1 Relevance and Benefit of Eco-labels to Brands and Consumers

2.1.1 Educate Consumers

The primary benefit of eco-labels is to educate consumers about their purchase decisions. Pederson and Neergard write that while consumers want to incorporate environmental decisions into their purchases, the knowledge of consumers relating to environmental labels is very limited (2005). Some labels may inform the consumer of the environmental impact of the product, while others may evaluate a product based on its life cycle (Tang, Fryxell & Chow, 2004). The most common type of eco-label is a seal demonstrating how a product has met a pre-determined set of standards (Tang, Fryxell & Chow, 2004). An example of this seal would be the Oeko-Tex certification because standards must be met in order for a company to become Oeko-Tex certified. Green Seal is another label that is widely recognized and acknowledges environmentally responsible behavior for energy-efficient products (Banerjee & Solomon, 2003). Figure 1 shows the Green Seal label.

Figure 2: **Green Seal Label** (Banerjee & Soloman, 2003, p.110)

The success or failure of eco-labeling depends on the consumer's action to be passive or active. If the customer chooses a passive role, "the willingness to purchase environmentally friendly goods can be harnessed if the issues are not properly understood" (Gallastegui, 2002, p.321). If consumers choose to be active in their purchase behavior and modify their behavior to suit their concern for the environment, more effort must be placed on educating the consumer to help with their choices. Whether consumers choose the passive role or active role with purchase decisions, education through eco-labels is critical. The connection between specific environmental issues and purchase behavior is still very unclear to consumers (Gallastegui, 2002). Through the process of educating the consumer with eco-labeling, companies create a way to differentiate their products from competitors' and in doing so, create competitive advantages for themselves.

2.1.2 Provide Company Incentives

Eco-labels not only serve to educate consumers, but they also benefit companies as well, as explained by Wesley Nimon and John Beghin (2007) and Garth Hickle (2007). Environmentally friendly labels are becoming more prominent in the textile industry as a way for companies to show consumers their sustainability efforts, and also to display regulatory changes (Nimon & Beghin, 2007). Product Stewardship, as defined by Garth Hickle, is another way in which eco-labels can benefit companies (2007). When Product Stewardship is in place, manufacturers will be forced to rethink the design of their products

in order to reduce their impact on the environment, and eco-labels can serve as a way to not only convey the environmental messages, but to become a competitive advantage. Also, eco-labels and certification programs can re-shape "product design, manufacturing, and logistics decisions going forward" (Hickle, 2007, p.3). The adoption of product stewardship also creates the incentive for companies to establish recycling or buy back efforts in order to reduce their environmental impact, especially when seeking certification based on life-cycle assessments (Hickle, 2007).

The increased demand for environmentally-friendly products plays a role in competition among environmentally conscious companies (Gallastegui, 2002). Achieving eco-certification or participating in eco-labeling can also serve as a way to avoid public-relation risks and increase sales. Eco-labels can serve as a way to protect a brand and determine credibility among consumers (Gallastegui, 2002). Though eco-labels can potentially serve as a benefit to companies, they also benefit the environment by helping to reduce the environmental impact of processes and products.

2.1.3 Benefit to the Environment

While previous literature has shown that eco-labels serve to educate consumers and also have the potential to benefit companies, another important aspect is their benefit to the environment. Erskine and Collins state that eco-labels could potentially benefit the environment in four different ways (1997). First, lifecycle assessments can help companies to

address what needs to be improved and what is being changed; second, eco-labels may influence consumer buying of greener products; third, eco-labels will help with public awareness and finally, eco-labels serve as a way to compare different products and ultimately reveal what is best for the environment (Erskine & Collins, 1997). Erskine and Collins interviewed representatives of consumer and environmental organizations from the UK and Europe for eco-labeling research. The interview results showed that 87 percent supported the general concept of labeling as a way of educating consumers about the environmental friendliness of products (Erskine & Collins, 1997). While over 80 percent of respondents believed that eco-labeling has the ability to improve the environment, many argued that the administration, certification and labeling methods must be improved before eco-labels can have a positive impact (Erskine & Collins, 1997). A study by Lisette Ibanez and Gilles Grolleau (2007) expand on the idea that eco-labels benefit the environment.

Three different criteria were analyzed in Ibanez and Grolleau's study: how eco-label standards are defined, how eco-label claims are verified, and how the claim is communicated to consumers (2007). Ibanez and Grolleau's analysis is based on a mathematical model and the conclusions showed that imperfections associated with "green" markets and labeling can be reduced if certain conditions related to cost are met (2007). Results also showed that eco-labels can reduce pollution in the environment, and "can constitute to some extent an environmentally effective and economically efficient policy" (Ibanez and Grolleau, 2007, p. 234). A reduced environmental impact depends on whether consumers choose to play an active or passive role because the higher number of active consumers who wish to reduce

their environmental impact, the better the impact on the environment. However, eco-labels alone do not have the ability to solve the entire issue of pollution, or other environmental issues (Ibanez and Grolleau, 2007).

2.1.4 Current Certification Entities

The United States does not currently have a uniform eco-label system that covers an expanded range of product categories. However, Europe has taken large strides in the eco-labeling industry by developing the European Eco-label, or EU Flower, as part of a "broader strategy aimed at promoting sustainable consumption and production" (Targosz-Wrona, 2009, p.21). The EU Flower is voluntary for companies. The purpose of the EU Flower is to assist companies in marketing products that are environmentally-friendly, and to make these companies and brands easy to identify in the consumer's mind (Targosz-Wrona, 2009). Horne points out that while the EU Flower is based on a large scale and is regularly updated, "the bureaucracy, complexity, rigidity, delays in setting criteria, costs, access… and lack of 'star –rating' type differentiation of products constitute key weaknesses" (2009, p.178). There is also a lack of awareness of the program. A study that was completed in 2006 interviewed over 24,000 people located within the 25 states that the Flower program encompasses. The results showed that 48 percent of people do not know what the EU Flower label means (Horne, 2009). The EU Flower is not the only label initiative in Europe, however. As Figure

2 illustrates, there are many different eco-label programs for various countries in Europe. The labeling programs shown in Figure 2 are exclusively for textile products.

Country	Eco-Label Program	Eco-Label	Product code	Eco–labelled products	Country	Eco-Label Program	Eco-Label	Product code	Eco–labelled products
Czech Republic (CZ)	Ecological product		1402	Textiles	Poland (PL)	Eco-sign		1402	Textiles
Germany (DE)	Öko - Tex		1400	Products for children Products with direct contact with the skin Products with non-direct contact with the skin Decorations and accessories		Safe for infants			Products for children
European Union (EU)	EU-Flower		1402	Textiles Mattresses Shoes		Safe for children			Products for children
Croatia (HR)	Environmentally Friendly		1402	Towels		Human friendly		1400	Clothing
Netherlands (NL)	Milieukeur		1402	Shoes Protective shoes	Slovakia (SL)	Slovak environmental friendly product		1402	Textiles

***Figure 3*: Eco-labels in Europe** (Targosz-Wrona, 2009, p.23)

Targosz-Wrona compared the EU Flower initiative with the Oeko-Tex label. While both have similar criterion, the European Textile Eco-label is more concerned with fibers, processes and chemical parameters, while the Oeko-Tex label focuses more on health concerns (Targosz-Wrona, 2009). There are also differences between the test methods and limit values for each of the labels. The Oeko-Tex label is known as “an international synonym for responsible textile production” (Targosz-Wrona, 2009, p.22) throughout the complete textiles supply chain. The Oeko-Tex Association has awarded 50,000 certificates to 6,500 companies in 68 countries since 1992. The European Label has not seen initial success,

as only 67 certificates have been awarded since 1992, the majority of these being interior and clothing textiles (Targosz-Wrona, 2009). Revisions were proposed in 2006 in order to help make the European labeling program more successful. International eco-label efforts have both strengths and weaknesses that should be considered when developing an eco-labeling program. While Figure 3 shows various eco-labels in Europe, Figure 4 depicts eco-labels that are used internationally in other countries. Since eco-label certification and eco-label programs vary internationally, eco-label standards have been developed in the United States in order to categorize labels. The United States organizes eco-labels into three categories based on the International Organization for Standardization (ISO).

Figure 4: **Global Eco-labels** (Targosz-Wrona, 2009, p.23)

2.1.5 Eco-label IS0 Categories

The International Organization for Standardization (ISO) has created guidelines that provide standards for different types of eco-labels. The ISO 14000 Standards are aimed at the

management of environmental quality (Lavallee & Plouffe, 2004). The 14020 series of standards was adopted in 1998 and 1999 to give each type of environmental label a different standard. According to Lavallee and Plouffe, these standards are "the most direct link between products and consumers" (2004, p. 350), so they are very important in the understanding, standardization and acceptance of eco-labels. The ISO 14020 series states that there are three different types of labels: Type I, Type II and Type III.

2.1.5.1 Type I (FCC)

The first type of ISO label, Type I, is based on third party certification programs. Type I labels are typically government supported, and their purpose is to "certify both products and production processes according to different criteria that relate to the entire life cycle of the product" (Gallastegui, 2002, p.317). The EU Flower eco-label would be an example of a Type I label. For certification of Type I labels, there are two steps that companies must follow: standardization, which involves meeting requirements of specified criteria that is needed to obtain certification, which is the second step of the process. Certification allows companies to use the label on their products or services that meet the specified requirements (Lavallee & Plouffe, 2004).

2.1.5.2 Type II (Brand/Company)

Type II labels are self-declared environmental claims that have been made without third-party certification. The ISO standards state that there are certain requirements that companies must meet with this type of label: the label cannot be misleading, it must be accurate and it also must take into account the product's life cycle (Lavallee & Plouffe, 2004). Gallastegui argues that Type II Environmental labels tend to be one-sided because they are claims made by manufacturers, importers or distributors (2002). A label referring to a claim of a *CFC-free* product (chloroflurocarbon-free), a harmful compound, would constitute a Type II label (Gallastegui, 2002).

2.1.5.3 Type III (Life cycle Assessment)

The ISO 14001 Standard also identifies a third label, Type III. ISO Type III labels use pre-set indices and give information about products using independent verification. These Type III labels are not widespread due to their time and cost commitment. A life cycle assessment based on the 14040 standards is used for this labeling system, and Type III labels are not comparative, which may make it difficult for a consumer to evaluate a Type III labeled product compared with other similar products (Lavallee & Plouffe, 2004). Life cycle assessments give information about the amount of recycled materials, information regarding toxic substances, or any other information pertaining to the environmental impact of a product. The information is presented on a report card. The results, however, are not

compared to other similar products. Though the life cycle assessment is an indication of quality, consumers generally do not understand the importance behind the findings (Lavallee & Plouffe, 2004). Overall, the categorization of eco-labels using the ISO 14020 standards is necessary to aid in the standardization of eco-labels.

2.2. Drivers for Standardizing Eco-labels

2.2.1 Regulation and Control

Since there are multiple labels for many different product categories, standardization has not been achieved for eco-labels. The first driver for standardization is regulation. Lathrop and Centner explain that there are currently no specific standards or laws that allow government to regulate and evaluate environmental claims, and the development of these standards has been slow (1998). Lathrop and Centner suggest that because there is no regulation, private companies initiate their own certification or labeling programs due to the fact that different states have different standards (1998). The lack of consistency between the states becomes an issue because companies must spend additional time and effort complying with the laws for various states. Furthermore, state laws fail to encourage companies to provide complete information regarding the environmental claim, so inconsistency becomes prevalent (Lathrop & Centner, 1998).

2.2.2 Lack of Consistency

The effectiveness of eco-labels is not certain, and a major reason for the uncertainty is the fact that "traditional marketing tools such as advertising, packaging, and promotions are never held constant; as a result, [eco-label] impacts cannot be assessed in isolation" (Salzman, 1997, p.13). The reason for the inability to measure the effects of eco-labels is partly because of the variation between label and certification programs. The Coalition for Truth in Environmental Marketing Information, Inc., has argued that eco-labels are misleading to consumers and can hinder consumers' abilities to make informed decisions (Salzman, 1997). A consistent, widely recognized and easily understood label would satisfy these aforementioned issues. The lack of consistency has the potential to lead to negative consumer reactions. The third driver for standardizing eco-labels is consumer demand.

2.2.3 Consumer Demand

2.2.3.1 Lack of Knowledge and Consumer Confusion

A common issue discussed in the literature is consumer confusion and lack of consumer knowledge. Pedersen and Neergaard (2005), and Laric and Sarel (1981) discuss these issues in detail. Pedersen and Neergaard explain that the lack of consumer knowledge has three major implications regarding eco-labeling: first, the design and symbol of the label cannot be ignored (2005). Consumers may "perceive the eco-label as any other brand, placing more importance on the subjective meaning than the actual content of the

label" (Pedersen & Neergaard, 2005, p.19). The eco-label can become a status symbol in the consumers' eyes, rather than an informative, useful tool. Second, the labels must be credible. Credibility relates back to regulation and third-party verification of claims. A lack of credibility can lead to the third implication of the lack of consumer knowledge, greenwashing.

Greenwashing can become a major threat when consumers lack knowledge of the meaning of labels. Label deception is common with green products, and Laric and Sarel cite Gardner (1975) in their article where they discuss three categories in which companies can misinform consumers concerning eco-labels: Unconscionable lie, Claim-Fact Discrepancy, and Claim-Belief Interaction (Laric & Sarel, 1981). Unconscionable lies occur when claims are found to be untrue upon further testing. Claim-fact discrepancy occurs when companies make claims that their label is recommended or supported without any sufficient evidence to prove their statements. Finally, claim-belief interaction happens because customers misread claims or certifications when they are in an abbreviated format (Laric & Sarel, 1981). Laric and Sarel believe that the third category, claim-belief interaction, is the most relevant. Companies may include images or logos on their products without further explanation or disclaimers. Consumers may not be willing to research for more information, as they may find further research to be unnecessary or time consuming (Laric & Sarel, 1981). Therefore, consumers may form their own beliefs about eco-labels that are untrue. These three ways in which companies mislead consumers each contribute to the growing issue of consumer confusion.

Consumer confusion is another important issue regarding eco-labels. Due to the fact that there is not a centralized system for eco-labeling, "consumers may not have a reliable means of evaluating the environmental status of the products they purchase" (Lathrop & Centner, 1998, p.164). Consumers do not understand how their purchase plays a role with sustainability. Ken Peattie and Andrew Crane suggest that another major issue with eco-labeling is the fact that consumers are not educated properly, and because of this, become pessimistic (1998). Peattie and Crane write that consumer cynicism is on the rise for green products, green claims, and the companies behind the claims (1998). Green marketing is critical to improve consumer knowledge and awareness, however, green marketing is not effective if consumers do not trust the companies or claims (Peattie & Crane, 1998).

While green marketing is meant to educate consumers, the distrust among consumers can cause them to react negatively to the company or brand behind the message. In terms of green marketing and improving the environment, there are four features of marketing that must be considered (Peattie & Crane, 1998). First and foremost, the customer must be the driver. Peattie and Crane note that this is a challenge for the green marketing agenda because it may be difficult for companies to think of the customer first, and then expand to the needs of stakeholders and future generations of customers. Second, sustainable marketing must also have long-term goals. Many companies are not willing to invest in green technologies because of the initial cost. The authors note that the transition to long-term thinking is difficult because marketing in the past has been focused on immediate benefits for the consumer, rather than future benefits. The third feature is that all of the company's resources

must be expended. Green marketing should be reflected throughout all aspects of the company to ensure that no part of the company will compromise the eco-friendliness or eco-performance of products. The company should be fully invested. Finally, marketing should be innovative. Customer needs and wants can be met through innovations in market structures or other supporting services (Peattie & Crane, 1998). The authors discuss that one major change that must take place is that marketing should aim to inform, not just impress. The effectiveness of eco-labels may have a greater impact if consumers are aware of the meaning behind them. Confusion and distrust can also be caused by unclear claims made by companies.

2.2.3.2 Vagueness of Claims

Words that are seen multiple times can eventually lose their meaning, which can happen with eco-labels. Sue Thomas writes that "environmental, ecological, green, sustainable, ethical, recycled, organic, and (universal) fashion and fashion design, as terms, coexist, cross-fertilize, and are readily confused" (2008, p.526). Often, these words are interchangeable in the consumers mind, and placing them on a label does not send a clear message. Cotton Incorporated has identified the misinterpretations of the Eco-fashion vocabulary as *Green Blur*, and this phenomenon not only confuses the consumer, but can also cause consumers to stop looking for green choices (Thomas, 2008). Therefore, Thomas presents a glossary in attempt to define the most common words found when describing

sustainable fashion and explaining their geographical and historical implications. The topic is critical because if consumers do not understand or cannot differentiate the terminology behind green clothing, greenwashing can take place, and ultimately the purpose of ethical apparel becomes obsolete.

Thomas points out that the goal "is not to standardize terminology but, instead, to provide a starting point for what might appear to be uncharted terrain" (2008, p. 526). A claim that a product is recycled does not offer any useful information, nor does it validate it for being a green product (Lathrop & Centner, 1998). Companies must stand behind their claims and iterate why the product is green, i.e. what has been recycled, how does it help the environment, and ultimately, why does it matter? The Federal Trade Commission has expanded provisions called the Green Guides to help with the lack of clarity. The guidelines state what may be perceived as deceptive with terms such as *biodegradable*, *degradable*, *compostable*, *environmentally friendly*, *recyclable*, and *ozone friendly* (Lathrop & Centner, 1998, p.165). Some companies may use these terms on labels to mislead consumers, which creates a need for standardization and verification of label claims.

Though regulation has been somewhat unclear regarding eco-labels, the Federal Trade Commission has developed the Green Guides in order to be sure that claims that are made are true and verifiable. The overall purpose of the Federal Trade Commission is to protect the consumer. The Green Guides were first introduced in 1992, and revised in 1996, 1998, and 2010 (Katz, 2010). The three main purposes for these guides are to:

1. Provide general principles that apply to all environmental marketing claims
2. Identify how consumers are likely to interpret particular claims and how marketers can substantiate these claims
3. Identify how marketers can qualify their claims to avoid deceiving consumers.

(Katz, 2010, p.1).

The most recent changes to the Green Guides in 2010 were included in order to address the growing problem of green marketing claims versus consumer understanding of the claims. The disconnect of the marketing claims and understanding is present, and the Green Guides hope to "help businesses better align their product claims with consumer expectations" (Katz, 2010, p.1). The changes give guidance and information regarding *degradable*, *compostable*, and *ozone-friendly* claims, as well as information about certifications and seals of approval. The Green Guides clearly outline how companies must provide proof and meet certain criteria in order to place specific claims on their products. For example, in order for a product to be labeled as *degradable*, decomposition must occur in one year or less after disposal of the product (Clark, 2010).

The FTC emphasizes that claims such as *environmentally friendly* or *eco-friendly* are too general for consumers to understand. Katz writes that "very few products, if any, have all the attributes consumers seem to perceive from such claims, making these claims nearly impossible to substantiate" (2010, p.1). General claims such as these cannot be supported,

and are therefore misleading to consumers. A consumer perception study was completed by the FTC in order to find out what consumers believed about environmental claims and certifications, and these specific claims elicited far-fetched and extreme environmental benefits. Similar to vague claims, unqualified certifications should not be used to market products. Companies should clearly state the qualifications that are needed to obtain certifications and seals of approval to send a clear message to the consumer about why the product benefits the environment (FTC, 2011).

Cotton Incorporated conducted a survey in 2006 to see if consumers understood what *sustainable* and *renewable* meant. The correct consumer response for *sustainability* as it related to agriculture was having a "minimum impact on the environment", as 13 percent of consumers responded, and "reuse or replenish land, use in future, doesn't deplete", as 20 percent of consumers responded (FTC, 2010, p.1). As for the term *renewable*, the correct consumer interpretations or responses were "recycled" (10%), "reused/re-grown" (19%), and "sustainable for the environment" (3%) (FTC, 2010, p.1). Therefore, it was concluded that one-third of consumers who were surveyed correctly understood the terms *renewable* and *sustainable*.

A similar study was done for Cotton Incorporated's Lifestyle Monitor in 2008 in order to determine if consumers understood the term *sustainable* as it relates to clothing. Their survey question and responses are shown in Figure 5, Cotton Incorporated Sustainability Survey. As shown in Figure 5, the majority of consumers (43%) believed that sustainable

clothing is clothing that is durable and is of high quality. Almost one-third of consumers did not know what sustainable clothing meant (FTC, 2010). The lack of consumer understanding is an important issue with labeling, and also has the potential to create legal problems for companies as well.

WHAT DOES THE TERM "SUSTAINABLE" MEAN WHEN REFERRING TO CLOTHING?	
Will last longer / Good quality	43%
Made from renewable/natural resources	10%
Made using green/environmentally friendly practices	6%
Stains remove easily	3%
Other	8%
Don't know	32%

Source: Cotton Incorporated's Lifestyle Monitor™ Survey: July 2008

Figure 5: **Cotton Incorporated Sustainability Survey** (FTC, 2010)

There have been several legal actions concerning eco-labels and environmental claims. Jason Gary-Lee, Debra Scammon and Robert Mayer explain that between 1990 and 1992, there were 48 cases against marketers making environmental claims (1994). Gray-Lee, Scammon and Mayer state that there are three major claims companies make that can pose legal problems. The first are general claims. These are vague or unsubstantiated claims that companies make in order to appear environmentally friendly to consumers. Examples of general claims include *environmentally friendly* and *environmentally safe* (Gray-Lee, Scammon, & Mayer, 1994, p.155). To avoid legal action with general claims, companies should be specific as to how the product helps the environment. Second, solid waste claims are related to the degradability of a product. These might include *biodegradable* and *safe for*

the environment (1994, p.156). These claims are not substantiated and are often misleading for consumers. Finally, ozone-related claims include *ozone-safe* and *contains no CFCs* (Gray-Lee, Scammon, & Mayer, 1994, p.156). While a product may not contain CFCs, there may be other ingredients or chemicals that are not environmentally safe that companies fail to mention.

Consumer demand, specifically consumer confusion, the lack of knowledge, and vagueness of claims, is an important driver for eco-label standardization. Companies have the opportunity to clearly articulate their messages and educate the consumer through eco-labels. The fourth driver for standardization, the design and message of the eco-label, plays a large role in doing so.

2.2.4 Eco-label Design and Message

The design and text of an eco-label plays an important role in consumers' beliefs and understanding behind the label. The tone and message of an eco-label can be positive or negative, and each of these kinds of eco-labels has a different impact on the consumer. A study done by Gunne Grankvist, Ulf Dahlstrand and Anders Biel showed the impact of eco-labels relating to the positivity and negativity of the label, and proves that consumer interest plays a large role (2004). The purpose of negative labels is to send the message of avoiding certain products, while positive labels convey the opposite message. Negative messages may try and persuade consumers to avoid a certain product because it is worse for the

environment than average products, while positive labels describe why a particular product is superior (Grankvist, Dahlstrand, & Biel, 2004). Two hypotheses were given:

> H1: Individuals with a stronger environmental concern will be more affected by information about both positive and negative environmental outcomes than those with a weaker environmental concern.
>
> H2: Individuals with an intermediate environmental concern will be more affected by information about negative environmental outcomes than by information about positive environmental outcomes.
>
> (Grankvist, Dahlstrand, & Biel, 2004, p.220).

Forty people participated in the study, 25 women and 15 men, and all participants were undergraduates. To test the positivity and negativity of an eco-label, a three-level system was put forth, adopted from a traffic light design. The top signal was red, and was defined as having "much worse than average" environmental consequences when compared to products from the same category. The yellow signal had "average" environmental consequences, while green labeled products were "much better than for the average product" (Grankvist, Dahlstrand, & Biel, 2004, p.220). Sixteen pairs of products (eight food, eight non-food commodities) were selected.

Results showed that "individuals who had a weak or no interest in environmental issues were unaffected by either kind of label. Individuals with an intermediate interest in

environmental issues were more affected by a negative label than by a positive label. Individuals with a strong interest in environmental protection were equally affected by the two kinds of labels" (Grankvist, Dahlstrand, & Biel, 2004, p. 213). The study is significant because it shows that consumers who display even a small interest in helping the environment are more affected by a negative eco-label, while those who are very interested in sustainability are equally impacted by both. The results are critical for environmentally-conscious companies when marketing to their specific target market, as well as when they choose their eco-label design.

The tone of the label is not the only way consumers are impacted, but the design of the eco-label is important as well. The design of an eco-label does not only refer to the image on the label, but also the message contained within the label. Tang, Fryxell, and Chow discuss the effects of visual and verbal communication for eco-label designs and how they affect consumer purchasing behavior (2004). Regarding eco-labeling, the authors state two major obstacles: first, it is difficult to determine the environmental performance for products over the entire life cycle, and second, eco-label credibility is often questionable. Both visual and verbal communication can help to verify the message that a company wishes to convey to the consumer, and can thus alleviate the question of credibility. There has been variation with research completed on the recollection of words versus pictures. Previous research has shown that pictures, or visual communication, are remembered and recalled easier than words, or verbal communication. However, other studies confirm that written messages may be remembered just as easily as visuals when the written message uses concrete words (Tang,

Fryxell, & Chow, 2004). Tang, Fryxell and Chow clarify that concrete words refer to "objects, materials or persons…'apple' and 'teacher' would be concrete while concepts like 'justice' and 'bravery' would be abstract" (Tang, Fryxell, & Chow, 2004, p. 92). Abstract words may have different meanings to different people, while concrete words are solid and definite. Figure 6 shows the summary of different international eco-labeling programs, and also illustrates their visual, verbal or visual and verbal classification.

Tang, Fryxell, and Chow's study was conducted based on an online shopping simulation where 234 Hong Kong student-customers chose products based on their attributes. Three hypotheses were put forth: "(1) the presence of an environmental seal of approval (i.e., visual communication) on product packaging encourages consumers to purchase the product; (2) the presence of a written message of environmental attribute (i.e. verbal communication) on product packaging encourages consumers to purchase the product, and (3) the effects of an environmental seal of approval and a written message of key environmental attribute on consumer purchase intent are additive" (Tang, Fryxell, & Chow, 2004, p. 94).

The eco-label	The program objective	Government involvement	Written Content	Classif-ication
Germany	The eco-label aims at not only environmental protection but also those of consumer protection. Certification is for those products and services which from a holistic point of view that are particularly environmentally friendly and at the same time up to high standards of industrial safety, health protection and serviceability.	Government is heavily involved, together with an independent decision-making body called Environmental Label Jury representing various interests	"Environmental Label" is written at the top while space is reserved at the bottom for writing the most important environmental feature, after the word "because"	Visual plus Verbal
European Union	Empowerment of the individual through consumer choice is a central principle of the scheme. By setting strict ecological criteria for product groups, the scheme enables consumers to make reliable and informed decisions.	Each member state is required to designate a Competent Body to administer the scheme at a national level. The Competent Bodies must be independent and neutral but with no restriction on level of government involvement	No written content other than the letter "e"	Visual only
U.S.A.	To achieve a more sustainable world by promoting environmentally responsible production, purchasing, and products.	Operates under a non-government independent non-profit organization	Only the name "Green Seal" is written, however, accompany text that spells out the environmental attribute of the product can be written beneath the seal or anywhere on the packaging	Visual only, with verbal nearby
Canada	• encourage the efficient management of renewable resources to ensure their availability to future generations; • promote the efficient use of non-renewable resources, including fossil fuels; • facilitate the reduction, reuse and recycling of industrial, commercial and consumer waste; • encourage the protection of ecosystems and species diversity; and • encourage the proper management of chemicals in products.	Run by the government with the main services outsourced to a private sector company	Only the name of the label "Environmental Choice" is written, no verbal explanation on why the label is given	Visual only
Australia	To contribute to the growth of the environmental consumer market in Australia and add commercial value to companies and businesses which are preferable on environmental grounds.	Run by a non-profit organization with little government involvement	Only generic words "Environmental Choice" and "Australia" are written, text that specifies product category and license number can also be printed anywhere nearby	Visual only, with verbal for non-enviro. info. nearby
China	To assist the general public to become more environmentally responsible in their everyday life's by raising the awareness of green consumerism and to assist enterprises not to be wasteful in using resources and non-renewable energy, and to encourage the development and production of green products which are friendly to the environment and not harmful to human.	Totally run by state organizations	Only generic words "China Environmental Labeling" are written in both English and Chinese, no verbal mentioning about environmental attribute	Visual only
Japan	To disseminate information on the environmental aspects of products and to encourage consumers to choose environmentally sound products.	Run by the government with collaboration from various interest groups	At the top, "Friendly to the earth" is written in Japanese; at the bottom the most important benefit for environmental protection is written	Visual plus Verbal

Figure 6: **International Eco-label Programs** (Tang, Fryxell, & Chow, 2004, p.88)

The students were randomly assigned into four groups of approximately sixty people within each group. They were given shopping catalogs that resembled web pages and had a budget of HK$500, or approximately $64 US dollars. Ten product categories were displayed: "potato chips, batteries, tissues, washing powder, light bulbs, cooking oil, hairspray, fruit drinks, pain reliever and printer paper" (Tang, Fryxell, & Chow, 2004, p. 95), and each of these categories contained three different brands to choose from. The manipulations in this study included the presence or absence of an eco-seal (visual communication) and the presence or absence of a message explaining the environmental significance of the product (verbal communication).

All three hypotheses were supported and proved that the most effective eco-labels have both a seal and a message. Results concluded that students spent the most amount of money when both verbal and visual communication were used together (Tang, Fryxell, & Chow, 2004). Figure 7 summarizes the mean values (HK$) of green purchases when visual and verbal cues were present. However, "the effectiveness of any eco-label would probably diminish if the consumers are skeptical towards the environmental claims and/or do not trust the certification organization" (Tang, Fryxell, & Chow, 2004, p. 100). Therefore, credibility plays a large part in the success of the design of eco-labels and consumer response. The tone and design of an eco-label are considerations that must be taken into account for consumer response to a label, and both are drivers for a more uniform eco-labeling system. The final driver that will be discussed is the importance of brand strategy and protection.

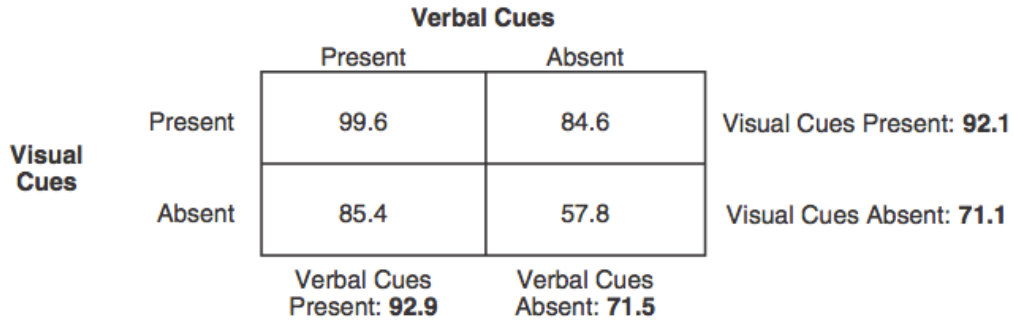

Figure 7: **Mean Values of Green Purchases for Verbal and Visual Cues**
(Tang, Fryxell, & Chow, 2004, p. 97)

2.2.5 Brand Strategy

The final driver for standardization of eco-labeling is the brand strategy for sustainability. The brand strategy drives the business and ultimately, protects the brand. Erik Joule explains that sustainability is not simply a buzz word in the business world (2011). According to Joule, it is becoming clear that "an organization's sustainability is essential to its very profitability and ability to continually innovate and create value for its customers. In short, sustainability is becoming the new price of admission to the mass marketplace" (2011, p.16). Sustainability must be ingrained into the brand strategy and fully supported in order to enter the market. A sustainable business model does not simply mean altering the products, however, processes and priorities must also be assessed, modified, and maintained.

A clear example of a company using environmental labeling efforts in order to preserve their image, values and management system would be Levi Strauss. Joule describes how Levi's business model, centered on sustainability, has strengthened their relationship

with consumers. Levi's approach to business is "profits through principles", committing themselves to sustainability in all aspects of business (Joule, 2011, p.16). According to Joule, the sustainability initiative that Levi's incorporates throughout their entire business strategy is "inherent to the long-term well-being of a brand" (Joule, 2011, p.20). One way in which Levi's has used eco-labeling to educate and inform the consumer is through their Care Tag for Our Planet launched in 2009 (Joule, 2011). Levi's explains to consumers how the care of their garments affects the environment, and they encouraged consumers to wash their jeans in cold water and line dry, rather than using warm water and mechanically drying them. This small change can reduce the impact of washing jeans by up to fifty percent (Joule, 2011). The company also encourages consumers to donate their jeans to Goodwill, rather than dispose of them. Through this care tag, the company not only educates consumers, they connect the consumer to the brand and their values. Levi's also works with competitors, governments, and nongovernmental organizations to discover more sustainable ways of doing business since consumers have placed such a high demand on sustainable products. The use of the eco-label to protect the brand and the brand's image not only drives profits for Levi Strauss, but it also impacts the consumer on a personal level and clearly states how their purchase affects the environment (Joule, 2011). Before a company can integrate sustainability into their business model, as Levi's has successfully done, a company first must understand their intended consumer.

2.3 Consumer Behavior Related to Eco-labels

2.3.1 Types of Green Consumers

In order to understand consumer behavior, it is imperative to understand the various *green* consumers; that is, consumers who have differing degrees of interest in sustainable purchases. Finiesterra do Paço, Barata Raposo and Filho found that consumers who have concern for the environment can be divided into three segments: *the uncommitted*, the *green activists*, and *the undefined* (2009).The *uncommitted* consumers make up about 36 percent of consumers. They are typically younger, aged 18 to 34, and have a negative position related to environmental aspects, yet claim to be knowledgeable on the issues. The second group, *green activists*, consist of 35 percent of the consumer market, and have a positive attitude towards environmental aspects, particularly "efficiency, environmentally friendly buying behavior, [and] recycling", but exhibit distrust towards promotions and advertisements of green claims (Finiesterra do Paço, Barata Raposo & Filho, 2009, p. 23). Finally, the *undefined* group of consumers are activists, yet they have negative positions toward environmental issues. This group of consumers do not believe they make an impact by choosing environmentally-friendly products, and they are highly skeptical of marketing claims. The *undefined* consumer group makes up approximately 29 percent of the market (Finiesterra do Paço, Barata Raposo & Filho, 2009). Figure 8 illustrates each environmentally-conscious consumer group and what percentage of the market each group consists of.

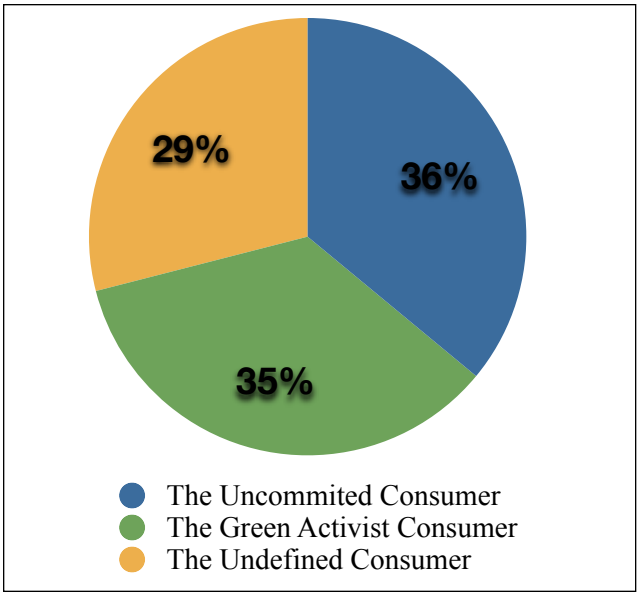

Figure 8: **Consumer Group Categories**
(Finiesterra do Paço, Barata Raposo & Filho, 2009)

There are differing opinions as to how to group or organize environmentally-conscious consumers. Chitra also presents a method for separating green consumers by dividing them into four categories: *aspirants*, *addicts*, *adjusters* and *avoiders* (2007). *Aspirants* have a desire to purchase environmentally-friendly products, and believe the products provide value in relation to their price. *Addicts* have a very favorable attitude towards green products, and buy only these products. They will not substitute non-eco friendly products, and will wait for the availability of the product. *Adjusters* buy products based on availability, price and quality, and do not tend to separate or compare eco-friendly products and non eco-friendly products, as these consumers do not believe there is a large difference. Adjusters are simply satisfied with products that meet their needs. Finally, *avoiders* feel that environmentally friendly products are a marketing scheme, are not durable,

and are too expensive (Chitra, 2007). This study is similar to the study that was done by Finiesterra do Paço, Barata Raposo & Filho because consumers are grouped into general categories: those who actively buy green products, those who are willing to buy green products but are still unsure, and those who have negative associations towards green products and companies who market them. Defining the *green* consumer market is necessary because when consumers are grouped, companies can then begin to understand their purchase behavior in relation to green products.

2.3.2 Characteristics of Green Consumers

A study conducted by Shrum, McCarty, and Lowrey measured five behavioral factors in relation to green consumers, and evaluated how these factors affect shopping behaviors (1995). Impulse buying, opinion leadership, interest in products, brand loyalty, and care in shopping were all tested and measured. It was found that green consumers tend to be interested in new products, seek new information, and discuss new products with others. Green consumers "consider themselves opinion leaders, and hence may provide word-of-mouth information that other consumers respect" (Shum, McCarty, & Lowrey, 1995, p.80). Their opinions have the ability to shape and affect other consumers' opinions and attitudes towards green products and companies. They are cautious shoppers, however, and are not swayed by impulse buys. Furthermore, they lack brand loyalty. This characteristic is promising for companies who promote their greenness as a primary selling point because if

the company is the first to reach the consumer with a new product, they may see more success. Price is also an important factor when shopping for green products, which has been shown to be true with non-green products as well. The authors concluded that green consumers are always searching for new products, which provides an opportunity for new design and innovation for environmental products (Shum, McCarty, & Lowrey, 1995). Companies have the potential to create new products and ideas that will appeal to the green market. These different behavioral characteristics of green consumers play a large part in how they will respond to marketing efforts, specifically eco-labels.

2.3.3 Consumer Reactions to Eco-labels

Consumer reactions to eco-labels have been studied by many authors, and the results of some of these studies will be discussed in this section. The first study that discusses consumer reactions to eco-labels was written by Gwendolyn Hustvedt and John Bernard (2008). Hustvedt and Bernard examined consumer willingness to pay (WTP) for three different attributes of fibers for apparel products: origin of the fiber, type of fiber, and production method for the fiber (2008). The first attribute, fiber origin, contained three different options that were observed: imported fibers, fibers made in the US, and locally produced fibers. In terms of the fiber type, the second attribute that was measured, cotton and Polylactic acid (PLA), a fiber made from corn, were used in the study. Finally, production method was the third attribute that was studied, which compared the use of organic cotton

versus genetically modified (GM) cotton. For the study, socks were chosen because of their low cost, widespread use, and easy access. In order to test consumers' willingness to pay, students from Texas State University were chosen to participate. Sock auctions took place, where the students bid on different socks based on their varying attributes (Hustvedt & Bernard, 2008).

The results showed that in terms of fiber origin, the study participants would pay more for local fibers when compared to imported fibers. However, while local labeling was favored, the labeling of the country has less impact than the other attributes. The effect of the production method was the largest bid increase, which implies that "production methods may be more on the agenda of consumers than origin issues" (Hustvedt & Bernard, 2008, p. 496). It was observed that for the production method, there was no need for companies to advertise or explicitly state the non-GM properties of fibers because only the organic aspect is of worth to consumers. Organic socks had almost a $1.86 increase in WTP. The fiber content had an impact on WTP as well. Results showed that consumers paid about 40 cents less for the socks once they discovered the fibers were made with PLA. Hustvedt and Bernard state that the reason for the decrease in WTP for PLA fibers may be due to the unwillingness to adopt new technologies, or may be a lack of interest in fibers that have been manufactured (2008). The study is relevant to apparel producers in order to understand what consumers will pay more for and what is most important to them when they read environment labels on apparel.

Another study relating to consumer responses to eco-labels was written by Laric and Sarel (1981). Their objective was to determine how consumers' perceptions about a certification mark changed over time. Two different consumer studies were completed in 1972 and 1980 (Laric & Sarel, 1981). In order to select the certification mark that was to be used in the study, there were three main criteria: the label had to be well-recognized, it had to provide consumers easy access to detailed information, and it had to undertake major changes in objective meaning as a result of public policy. Therefore, the Good Housekeeping Seal (GHS) was chosen. When screening respondents for the studies, the participants had to be aware of the GHS and had to have read at least one Good Housekeeping magazine issue six months before the interviews. In order to select respondents, samples were taken from the northeastern United States for both years. In 1972 there were 411 interviews, and in 1980, there were 545 interviews (Laric & Sarel, 1981). Data was collected on behavioral, perceptual and demographic measures, and after evaluating the data, there were no major differences for either year regarding these attributes.

Education was the only variable that had an affect on the results, as college educated respondents showed more skepticism relating to the GHS than high school educated respondents. The perceptual measures pertained to questions regarding factual, evaluative and warranty information. The majority of respondents in this category believed that a product with the GHS is better than products without it, which was not correct for either year. Behavioral measures determined if consumers looked for the seal before buying a product. The purpose of this was to evaluate purchase behavior relating to the GHS. A cross-section

between perception and behavior determined that participants "who perceive the seal to provide valuable information…are more likely to use the GHS than respondents who perceive it as less valuable" (Laric & Sarel, 1981, p.141). These study results determined that there is a positive correlation between incorrect perception and usage. Also, readers of Good Housekeeping magazine were more likely to search for the GHS when purchasing products, demonstrating that awareness of the label has an impact on the purchase behavior. Laric and Sarel state that misperception of labeling is still a problem among consumers, and they believe that studies should be done to measure the value of labels to consumers (1981). This would be a difficult achievement because of the multiple product categories that different labels are used for. A study done by Abhijit Banerjee and Barry Solomon (2003) sought to study the energy labeling system, and how consumers responded to these labels.

Though the study done by Banerjee and Solomon is specific to energy efficiency, the discussion relating to the results can be applied to eco-labeling in the textiles market. Green Seal, Scientific Certification Systems, Energy Guide, Energy Star and Green-e were all evaluated in the study (Banjeree & Solomon, 2003). Consumer response and manufacturer/ market response were the evaluation criteria. Consumer responses had three dimensions: awareness, understanding, and behavior. Awareness relates to the extent that consumers know of the certification program, understanding shows how the consumer connects the environmental issue, the label, and action needed to be taken, and finally, behavior is related to how awareness and understanding translate to action. The second criterion, manufacturer/ market response, is crucial to eco-labeling success, and according to Banjeree and Solomon,

"the more manufacturers sign up to get their products certified, and the more marketers agree to sell such certified products, the more successful a labeling program will be" (2003, p.114).

After the results were evaluated, there were seven determinants of success that relate to labeling programs for energy in the United States: government support and credibility, budget, publicity and partnerships, label clarity, targeted product category, legislative mandates, and finally, incentives (Banjeree & Solomon, 2003). The authors also recommend seven suggestions to improve the labeling system: increase government involvement, avoid confusion, target specific product categories, improve label clarity, increase promotions and partnerships, support with legislative mandates, and improve incentives (Banjeree & Solomon, 2003). Each of these suggestions can be applied to eco-labeling for apparel in order to form a cohesive, structured, and standardized system. The success of a labeling system also relies on understanding consumer purchasing behavior, which was the focus of the study by Nicole Darnall, Cerys Pointing, and Diego Vazquez-Brust.

Darnall, Pointing, and Vazquez-Brust studied the purchasing behavior of 1,513 British customers and their attitudes towards green purchasing. They laid out suggestions for change that needs to take place, such as enhancing government incentives for green consumption and production, and also recommended stronger regulation regarding advertising claims, both of which have been previously addressed issues in other studies. The authors state that "the success of any eco-label centers on the label's credibility to communicate information about a product's environmental impacts" (Darnall, Pointing, & Vazquez-Brust, n.d., p.4). As stated previously, credibility and communication both play a

large role in whether or not the consumer will react positively to the label. However, very little is known about consumer purchasing behavior related to eco-labels. The factors that were considered in the study were the trust of companies to provide information about environmental concerns, and also the role that environmental knowledge plays in buying behavior (Darnall, Pointing, & Vazquez-Brust, n.d.). For the study, 1,513 consumers were surveyed online and the results showed that "individuals who either: a) understand more about climate change issues; b) feel more empowered to address these issues or c) trust government and environmental groups to provide information about climate change; are more likely to engage in green consumption and use environmental labels" (Darnall, Pointing, & Vazquez-Brust, n.d., p.1). The results highlight the importance of environmental education for consumer behavior to be affected by eco-labels.

Further research has been done by William Young, Kumju Hwang, Seonaidh McDonald and Caroline J. Oates (2009) regarding consumption of green products. It has been determined that factors such as consumer choice, learning, needs, values, attitudes, and buying process all influence consumer buying choices (2009). Young, Hwang, McDonald, & Oates focused on the buying process of green consumers by conducting 81 interviews in the United Kingdom (2009). Results showed that there was a major barrier when purchasing green products. The lack of information available to the consumer regarding the environmental and social aspect for products and manufacturers made it difficult for consumers to purchase green products (Young et al., 2009). Consumers were quoted as saying company claims and policies were vague, and the lack of information made some

consumers disregard the concern for the environment altogether. Another problem was the extended effort in researching and making decisions about the products and their green claims. Consumers felt they had to put too much effort into researching companies and/or their claims. One particular factor that was found relating to green criteria when purchasing products was whether the consumer trusted the information sources, which relates back to the issue of credibility. In the study, some consumers stated that a product with a sticker rating related to water consumption for a washing machine helped with their decision. Another product was promoted through Greenpeace, and it was found that the consumer trusted the seal enough to buy the product (Young et al., 2009). Eco-labels such as these are only effective if the consumer trusts the company making the claims.

Young, Hwang, McDonald and Oates also discussed key factors that will help consumers make more ethical purchases. These include the strength of the consumers' green value, purchase experience, decision-making time, knowledge of environmental issues, availability and costs (Young et al., 2009). The knowledge of environmental issues is dependent on green labels and information sources, as well as education about marketing claims. The authors state that government needs to provide clearer regulation regarding claims and labels (Young et al., 2009). This study greatly emphasized the need to inform and educate consumers about the products they intend to purchase because ethical decisions cannot be made relating to sustainability if consumers are not aware and informed.

Further expanding on the concepts of education and information is the study by Mario Teisl, Jonathan Rubin and Caroline Noblet (2008) that examined the interaction between consumers and eco-labels in the private market for vehicles and trucks in the United States. The authors, along with the previous authors, highlighted the importance of credibility, stating that "an increase in the perceived credibility of information can also positively impact the effectiveness of information" (Teisl, Rubin, & Noblet, 2008, p.143). The perceived credibility of information is affected by consumers' prior beliefs of the product and the information source. The authors explain that increasing the amount of information can also increase the perceived credibility of an eco-label (2008). The importance of information is related to the type of information that is shown on the label.

The sample for the study consisted of 2,000 people and five different versions of an eco-label were created. The participants rated the credibility of the information shown on the label, the perceived friendliness of the automobile, and the importance of the information on the label (2008). Similar to the study done by Laric and Sarel (1981), results showed that individuals with a higher education placed more importance on information relating to eco-friendliness, and are also more likely to trust eco-labels. Sex and age also played a role; results showed that the importance of eco-labeling was lower for men, and the credibility was highest among older participants. The results also determined that "an eco-seal with no other information gave respondents a greener view of the vehicle relative to more quantitative information, and that these eco-assessments are a significant factor in expected eco-buying behavior" (Teisl, Rubin, & Noblet, 2008, p.155). The results reiterate Tang, Fryxell and

Chow's study (2004) that explained how labels must be well-designed in order to impact consumer perceptions of the eco-friendliness of products. The authors concluded that without education programs, eco-labels are ineffective. People must understand the choices they make when buying a vehicle, or any other product, and how their choice impacts the environment (2008).

Teisl, Roe and Levy conducted a study in order to evaluate "how eco-marketing and seals of approval may affect consumer choice and rankings of electricity suppliers and to understand how those reactions differ across consumers" (Teisl, Roe, & Levy, 1999, p. 1066). Their study was based on a mall-intercept sample of 1,001 adults from eight different cities. Three different competing electricity products, denoted as A, B and C, were tested and two variables were manipulated in the study: the content of marketing points and whether the product displayed an eco-seal. The respondents were asked for the product they preferred the most and the product they preferred the least, and these preferences were converted into rankings. The results showed that eco-seals affected the rankings of the product more than they affected the choice of the products (Teisl, Roe, & Levy, 1999). The effect of the eco-label varied based upon levels of education and environmental involvement, and the type of information available to the consumer was important as well, once again repeating the important roles that education and information play in consumer purchase behavior.

The final study that will be discussed in this literature review was written by Ian Phau and Denise Ong (2007). The purpose of their study was to evaluate the response from

consumers concerning environmental claims of one respected environmentally conscious brand and one mainstream brand (Phau & Ong, 2007). The authors also noted consumers' perceptions of credibility and objectivity related to the environmental claims. The dangers of eco-labeling were discussed, specifically how consumer skepticism may lead to consumers avoiding purchases. Four hypotheses were tested in their study:

> H1: Consumers will respond more positively to environmental claims made for "green brands" than to the same claims for non-green products.
>
> H2: There is a significant positive relationship between audience attitudes and the perceived credibility of green messages.
>
> H3: Consumers who perceive the green brand to be credible [less credible] will respond more [less] favorably to the credibility of the environmental message.
>
> H4: Consumers will consider messages focused on the company's environmental activism more credible than those focused on the product's environmental correctness.
>
> (Phau & Ong, 2007, p.777).

The fourth hypothesis is based on findings that showed how advertisements related to environmental activism, such as those claiming to give donations to a cause, were found to be more favorable among consumers when compared with advertisements claiming environmental correctness, such as "organic cotton" or other similar claims (2007). Phau and

Ong's study used the Body Shop as the environmentally friendly brand, and compared the message credibility to Colorado for the neutral brand (2007).

The sample consisted of 380 shoppers between 18 and 34 years of age and exactly half were male and half were female. Data was collected using mall intercept interviewing, where every fifth person was approached. The questionnaire was divided into three parts: part A was demographic information, part B contained the measurement of environmental knowledge, product knowledge, environmental concern, environmental commitment, advertising attitude and advertising credibility and finally, part C contained four different promotional messages that applied to each brand. There were four promotional messages describing a "donation" appeal, an "environmental correctness" claim relating to the hangtag, an "environmental correctness" claim relating to the fabric of the garment, and the last message was used for control, and was not related to the environment (Phau & Ong, 2007, p. 778).

The results showed that hypotheses one, two and three were supported. There was a positive relationship between the attitude towards advertisements and the perceived credibility of the message. The results for the fourth hypothesis were contradicting to previous findings from 1999. The respondents "considered the message about the organic cotton T-shirt nature of the product being more credible than that describing the corporate donation…" (Phau & Ong, 2007, p.783). This contradiction indicates that consumer skepticism for cause-related claims has increased over the years.

Though consumers are the focus of eco-labels and advertisements, companies must take the initiative to inform consumers about the meaning and purpose behind their label. Without the knowledge, consumers tend to be more easily confused, and may even avoid eco-label efforts. These studies all provide information for companies to use for effective and manageable eco-label efforts. Table 1 summarizes the topics and findings of all studies related to consumer perceptions and behavior related to eco-labeling.

2.3.4 Federal Trade Commission Eco-label Study

The Federal Trade Commission (FTC) conducted a study in 2009 that examined consumers' perceptions of environmental marketing claims. The results of the study were used to determine if the FTC would make changes to the Green Guides (see Glossary of Terms). These changes were applied to the Green Guides in 2010. The FTC surveyed consumers' understanding of general environmental benefit claims, sustainable claims, renewable claims, carbon neutral and carbon offset claims (Harris Interactive, 2009). The data was collected using an online survey from Harris Interactive, and the final survey data was collected between August 18th and August 26th of 2009. The survey link was distributed via e-mail to 49,481 participants, and 3,924 people completed the survey, while 564 people partially completed the survey. The results of this study recognized the need for changes in the Green Guides by the FTC, which indicates that consumer perceptions play a critical rule in how companies are marketing their products (Harris Interactive, 2009). The Green Guides

ensure that there are no false claims in order to protect consumers from misleading information.

Table 1

Summary of Studies Relating to Consumer Reactions to Eco-labels

Author(s)	Purpose(s) of study	Findings and Results
Gwendolyn Hustvedt and John Bernard	Measure consumer Willingness to Pay (WTP) for socks based upon three attributes: fiber origin, fiber type, and fiber production method	· Fiber origin impacts consumer purchasing behavior: consumers will pay more for local fibers compared to imported fibers · The production method impacts consumer purchasing behavior: "Organic" is highly valued among consumers · Fiber content impacts consumer purchasing behavior: consumers: consumers pay less for garments made with polylactic acid (PLA) versus cotton
Michael Laric and Dan Sarel	Evaluate how consumer perceptions of the Good Housekeeping seal changed over the period from 1972 to 1980	· College educated participants showed more skepticism towards the GHS than high school educated respondents · The majority of respondents believed that a product with the GHS is better than products without the seal, which is incorrect for both years · Individuals who believe the GHS to provides valuable information are more likely to use the GHS than those who believe the seal is less valuable · Awareness of the label has an impact on purchasing behavior: those who read Good Housekeeping magazine were more likely to search for the label
Abhijit Banerjee and Barry Solomon	Evaluate eco-labels in the energy sector relating to efficiency and survey the awareness, understanding, and behavior of consumers relating to these labels	· Seven determinants of success were determined for the labels: Government support and credibility, budget, publicity and partnerships, label clarity, targeted product category, legislative mandates, and incentives
Nicole Darnall, Cerys Pointing, and Diego Vazquez-Brust	Study the purchasing behavior of British consumers and evaluate their attitudes towards green purchasing through an online survey	· Consumers who either: a) understand more about climate change issues; b) feel more empowered to address these issues or c) trust government and environmental groups to provide information about climate change, are more likely to engage in green consumption and use environmental labels than those who do not fall into these categories

Table 1 Continued

William Young, Kumju Hwang, and Seonaidh McDonald	Study the buying process of green consumers	· The lack of information available to the consumer concerning the environmental and social aspect for products and manufacturers was a major barrier when purchasing green products · The knowledge of environmental issues is dependant on green labels, information sources, and education on marketing claims · Consumers believed they had to spend too much time researching companies and their marketing claims · Trust in the brand and the label was a key factor in purchasing green products · Key factors were determined that will assist consumers in making more ethical purchases: the strength of the consumers' green value, purchase experience, decision-making time, knowledge of environmental issues, availability and costs
Mario Teisl, Jonathan Rubin and Caroline Noblet	Examine the interaction between consumers and eco-labels in the private market for vehicles and trucks in the United States	· Increasing the amount of information on a label increases the perceived credibility of the label · More educated consumers placed more importance on information relating to eco-friendliness, and they are more likely to trust eco-labels · Sex and age played a role in eco-labeling success: men did not find eco-labeling as important, and credibility was ranked highest among older participants · An eco-seal with no information gave the impression of a "greener" vehicle compared to seals with quantitative information
Mario Teisl, Brian Roe and Alan Levy	To evaluate how green marking and eco-seals affect consumers' choice and rankings of electicity suppliers, and understand how these reactions differ across consumers	· Eco-seals affected the rankings of the product more than they affected the choice of products · The effect of the eco-label varied, depending on levels of education, environmental involvement, and information available to the consumer
Ian Phau and Denise Ong	To evaluate consumer responses concerning environmental claims of an environmentally conscious brand versus a mainstream brand	· There is a positive relationship between the attitude towards advertisements and the perceived credibility of the message · Consumers will respond more positively to environmental claims made for "green brands" than to the same claims for non-green products · Consumers who perceive the green brand to be credible [less credible] will respond more [less] favorably to the credibility of the environmental message

Chapter 3: Methodology

3.1 Objectives of Research

The primary research question that this research sought to answer was, "are eco-labels important to consumers?" This question was answered by measuring consumer perceptions of four different types of Levi's eco-labels on jeans. The four types of sustainable initiatives that were depicted on the labels included product disposal, reduction in energy and water use, and organic materials in the life cycle of jeans. The five sub-objectives of the research were to determine:

1. The importance of eco-labels to consumers.
2. Which label is best/least understood by consumers.
3. Which label's environmental message is most/least important to consumers.
4. The consumer's perceptions of the effectiveness of the label of reducing environmental impact of jeans, i.e., which label does the consumer believe to be most/least effective?
5. The likelihood that consumers will follow directions on post-purchase labels.

This research is becoming more prevalent to apparel issues because as discussed in the literature review in Chapter 1, eco-labels are beginning to have more of a presence. The expanding presence of eco-labels is due to the fact that more companies have started to produce and market sustainable or green products. Sustainability information is conveyed to the consumer through the product labeling. Therefore, it is imperative for companies to understand if consumers are reading the labels that contain the environmental information

and if the labels are important to consumers. The research also determines if consumers understand the labels, which environmental concerns are most/least important to consumers, and which labels consumers believe to be most/least effective. By understanding these aspects, companies can market their products in a way that consumers understand and can relate to, therefore reducing the environmental impact of their products through the consumer. It also gives companies insight as to what knowledge consumers have regarding the environment and what has been miscommunicated. Furthermore, this research seeks to identify whether or not consumers will follow directions on labels. If consumers are not willing to follow directions, companies must understand the reasons in order for the environmental aspect of the product to be relevant. Overall, the information presented from this research will greatly help apparel companies market their environmentally-friendly products in a way that consumers will understand and connect with through eco-labels, and also have a positive impact on the environment.

The first step of the research process was to determine current labeling issues through a comprehensive literature review (see Chapter 1). A review of the literature determined current eco-label efforts, relevance of labels, standards, and drivers for standardization. Consumer behavior in relation to eco-labels was also included. The information that was found determined the remaining steps for the methodology. The second step of the process was to determine which labels would be evaluated. The label evaluation and selection process was completed based on the literature review information.

The third step of the methodology was the development of the survey instrument, which was based on the research objectives and label selection. A survey method of data collection was chosen for the research because surveys "can accommodate large sample sizes..., produce precise enough estimates to identify even small differences, are easy to administer and record answers to structured questions, facilitate advances statistical analysis, and concepts and relationships not directly measurable can be studied" (Hair, Wolfinbarger, Ortinau and Bush, 2008, p.105). Once the survey instrument was developed, the sample population was determined. A convenience sample of North Carolina State University students was chosen due to convenience for the administrator, convenience for the population, and the survey instrument that was selected. Finally, the survey was administered. The methodology steps are described in detail in the following sections.

3.2. Label Selection Process

The label selection process not only determined which labels to use, but which type of apparel product label would be selected, i.e., T-shirt labels or jean labels. Jean labels were chosen due to the fact that jeans are a popular apparel product among consumers. Cotton Incorporated's Lifestyle Monitor reports that in 2011, the average American owned seven pairs of jeans (2011). Two methods of label selection were considered, attempted and then discarded because the methods did not meet the objectives of the study. The first method was an in-store eco-label search. However, there was a lack of useful information for clothing labels in stores. Clothing labels were examined in department stores and Target. The labels

that were found in the stores included one eco-label stating environmental benefit, labels discussing the material of the label itself, and one label stating advice for disposal. The last one (disposal) was the only label used in this study, but no other labels had images or information that were relevant to the research objectives. The in-store label method was discarded because the store results were too narrow and not representative of all of the jeans that would be available to the sample of consumers. The labels found in the stores were also regional, and were not representative of the existing eco-labels that could be found on the internet. After determining inconclusive results from store labels, an expert in the field named Dr. Sam Moore was contacted. Sam Moore is currently the manager of Hohenstein Institute America and was the CEO at Burlington Chemical Company, Inc. Upon his advice, www.ecotextilelabels.com was considered to select the labels used for the study. Ecotextile Labels is a website that describes every eco-textile label including raw materials, social criteria, textile processing, management tools, energy use, end of life and disposal. However, access to the website was not feasible due to cost restraints for the research.

As a result, four Levi Strauss labels were chosen for this study because of the company's strong presence in the sustainability field, as documented in the literature review. Levi's has implemented a sustainability strategy across all aspects of the company, and focus their efforts on many environmental issues. Therefore, four different Levi's jeans labels were chosen due to their representation of various stages of the supply chain and the variation of sustainability concerns: Care Tag for Our Planet, Waterless, Care to Air, and Organic. Due to the fact that these labels were introduced at different times and were unable to be found in

stores, images were obtained online from press releases and Levi's articles that explained the label and initiatives that each label relates to.

Label 1, Care Tag for Our Planet, was introduced in January 2010. Levi's partnered with Goodwill in order to encourage consumers to donate their clothing when jeans are no longer needed (2010). The objective of this campaign was to extend the product lifecycle of jeans and also to give clothing to those in need. According to Jim Gibbons, president and CEO of Goodwill Industries International, approximately 23.8 billion pounds of clothing and textiles are placed in landfills each year (2010). Care Tag for Our Planet is the first type of label to encourage consumers to donate post-use in order to extend the life of the product and reduce the growing rate of landfill waste. The president of Levi Strauss Americas, Robert Hanson, explained that "the greatest opportunities for reducing environmental impact happen after consumers take their jeans home" (2010, p.1). The tag was sewn into the clothing and appeared in stores in Fall 2010.

Label 2, Waterless, was introduced in January 2011. The purpose of the Waterless label is to reduce the amount of water that is used during the manufacturing and processing stages of apparel development. Levi's used an average of 28 percent less water for many of their products that display the Waterless label. Levi's reports that Waterless jeans have saved 172 million liters of water during the processing of their products (2011). The Waterless campaign is aimed at reducing the amount of wasted water that is common in textile manufacturing. Levi's explains that one billion people, or one out of every eight people on

the planet, do not have access to clean water, and their aim is to stop the waste of this natural resource (2011).

Label 3, Care to Air, was a result of a 2010 design challenge that sought "innovative, covetable, and sustainable air drying solution for clothing" (2010, p.1). The challenge entries were accepted from June 1- July 31, 2010. Levi's previous research had found that environmental impact is reduced after the consumer has purchased the items, as previously discussed with Label 1. The purpose of Levi's contest was to find new and exciting design ideas to replace the standard idea of a clothesline. Levi's reports that 92 percent of households in the United States currently dry clothing in a dryer, which is a large source of energy use (2010). Levi's also found that line drying clothing is "one of the best ways consumers can reduce the climate change impact of their clothes" (2010, p.1). The winner of the contest was awarded $10,000 in August 2010, and the design was called "nothing is what it seems". The design was a piece of art that folded down to unveil a drying rack that can hold a full load of clothes. At the unveiling of the winner, air drying supplies were given away, including a clothesline for consumers to air dry their clothing. The Care to Air label was introduced in January 2011 and was an expansion of the Care Tag for Our Planet label. The phrase "line dry when possible" replaced the phrase "tumble dry medium" on the Care Tag for Our Planet in order to encourage consumers to air dry their clothing.

The fourth label features jeans made of organic cotton. In 2006, Levi's announced that they would be manufacturing jeans made out of 100 percent organic cotton. The jeans are labeled as "Levi's Eco Jeans" and became available in stores in November 2006. Robert

Hanson explained that the Levi's Eco jeans aim to minimize the impact on the environment without forfeiting style and quality that is expected with the Levi's brand (2006). The organic cotton jeans are available with the most popular fits in both men's and women's styles, and an embroidered lowercase "e" is on the inside of the front pocket or at the bottom right leg of each jean to denote the organic materials. All packaging is made with organic fabric or recycled paper (2006).

The four labels cover four major environmental issues with apparel manufacturing and purchasing: product disposal, reduction in energy use, material use, and water use in the life cycle of jeans. The survey will determine consumer perceptions regarding the effectiveness of the labels for alleviating these environmental concerns. The labels also represent pre-purchase and post-purchase environmental impact. The Waterless and Organic cotton labels reduce environmental impact before the consumer purchases the product, while the Care Tag for Our Planet and Care to Air labels aim at reducing environmental impact after the consumer has purchased the product. Table 2 lists each of the four labels and shows the label type, an image of the label, and the action that is required of consumers based on the label's information.

Table 2

Levi Strauss Eco-Labels

Label	Type of Label	Image	Action(s) required from the consumer
Label 1: Care Tag for Our Planet	Post-purchase		1. Donate jeans to Goodwill when they are no longer needed
Label 2: Waterless	Pre-purchase		N/A
Label 3: Care to Air	Post-purchase		1. Line dry jeans instead of machine drying 2. Donate jeans to Goodwill
Label 4: Organic Cotton	Pre-purchase		N/A

3.3 Development of the Survey Instrument

Following the label selection process, the survey was developed. The survey consisted of three sections with questions relating to consumer knowledge of sustainability, their perceptions of the four labels, and demographic information. Section I of the survey asked respondents general questions regarding shopping behavior and their thoughts about sustainability and sustainable apparel. Section II presented the four labels with questions regarding understanding of the label, the importance of the label, and the perceived effectiveness of the label to reduce environmental impact. The two environmental labels that are post-purchase, Care Tag for our Planet and Care to Air, also included questions regarding the respondent's likelihood of following the directions given on the labels. Section II was introduced with definitions for *sustainability* and *environmental impact* to ensure participants answered the questions with the same understanding of the vocabulary pertaining to the questions. Section III focused on demographic information such as age, gender, and major.

The survey design was based on Paul Lavrakas' "Encyclopedia of Survey Research Methods" (2008) and Hair, Wolfinbarger, Ortinau and Bush's "Essentials of Marketing Research" (2008). Hair, Wolfinbarger, Ortinau and Bush state that there are seven steps in developing a questionnaire. These seven steps were used as a framework for the survey development for this research: (1) confirm research objectives, (2) select appropriate data collection method, (3) develop questions and scaling, (4) determine layout and evaluate questionnaire, (5) obtain initial client approval, (6) pretest, revise and finalize questionnaire, and (7) implement the survey (Hair, Wolfinbarger, Ortinau and Bush, 2008, p.171).

In order to satisfy the research objectives, a quantitative approach was chosen to collect data for the four labels. Though the survey does include qualitative questions, the primary approach was quantitative. Hair, Wolfinbarger, Ortinau and Bush write that the main goals of quantitative research are "to obtain information to (1) make accurate predictions between market factors and behaviors, (2) gain meaningful insights into those relationships, (3) validate relationships, and (4) test hypotheses" (2008, p.82). Therefore, a survey instrument was used in order to gain understanding about relationships between the labels themselves, the labels and the consumer, and to gain insights about consumer perceptions regarding eco-labels for jeans. A quantitative methodology was the best option for the research due to the fact that the primary objective was to gain consumer perceptions over a large sample size. Quantitative research requires a specific goal and well-defined objective, which has been previously presented at the beginning of this chapter (2008). In order to meet the stated objectives of the research, a survey was the best instrument option.

The major purpose of using a survey is to provide facts from a representative group. The type of survey used for this research was a self-administered online survey. Self-administered surveys do not require a trained interviewer (Hair et al., 2008). The respondents read the questions by themselves and record their own answers. The advantages to this method of survey administration are low costs, respondent control, elimination of interviewer bias, and anonymity. Respondents can feel less pressure and may be more comfortable with the survey when their name is not used, therefore producing more honest results (Hair et al., 2008). An online survey was chosen due to the convenience and time restraints. Online

surveys are the most popular type of survey methods used today at 36.8 percent (Hair et al., 2008). Surveys administered online are the least expensive survey method, and this type of survey also provides an easy way to access samples (2008).

Paul Lavrakas states that there are four primary requirements when constructing questionnaires: "theoretical knowledge of the topic of research, valid and reliable operationalization of concepts and hypotheses of research, experience in writing a questionnaire, or at least the availability of good repertoires of published questionnaires, a knowledge of the target population" (Lavrakas, 2008, p.1). Measurement and scaling were critical to the survey development. Nominal scales, Likert scales, ratio scales, and unstructured questions were used for the survey questions. Nominal scales were used for Sections I and III on the survey relating to basic shopping behavior questions or demographic questions. Nominal scales are often used to obtain basic information that do not require any level of intensity (Hair et al., 2008).

Likert scales were used largely for Section II of the survey for questions that related specifically to the labels. Likert scales are a type of scale used to measure attitudes, behaviors and intentions, which were the objectives of the research for the four labels (Hair et al., 2008). Lavrakas states that including a middle category with response options is desirable, as is including five to nine response categories, so a five point Likert scale was used for the survey, each having a neutral option (2008). Finally, ratio scales were also used, primarily to obtain demographic information. Ratio scales are used to ask survey respondents to provide a

numerical value, and are designed to enable a "true natural zero" (Hair et al., 2008, p.150). Table 3 illustrates examples of nominal, Likert and ratio scales that were used in the survey.

Table 3
Question Examples for Nominal, Likert and Ratio Scales

Nominal Scale	How many pairs of jeans do you purchase annually? __ 0-3 __ 4-6 __ 7-9 __10+
Likert Scale	I clearly understand the purpose of the above label with respect to sustainability. __ Disagree __ Somewhat disagree __ Neutral __ Somewhat agree __ Agree
Ratio Scale	How old are you? ____

The survey design was comprised of both unstructured and structured questions. Though quantitative methods are primarily structured in the questions, a small number of unstructured qualitative questions were used in order for the respondents to express their own words (Hair et al., 2008). For example, one question asks the respondent to describe what they believe *sustainable apparel* meant in their own words. Though open-ended questions are more difficult to analyze, they provide insight that closed-ended questions may not provide (Hair et al., 2008).

As previously mentioned, the survey consisted of three sections that began with introductory and general information, then moved to more specific label information, and ended with demographic information. The introductory questions in Section I regarding

shopping behavior and sustainable apparel gave the respondents a brief overview of the research topic. Section II presented the four labels with questions regarding understanding, importance, and the perceived effectiveness of the label to reduce environmental impact. Finally, Section III focused on demographic information such as age, gender, and major. Hair, Wolfinbarger, Ortinau and Bush state that demographic information should be placed at the end of the survey because it is often personal information, and many people are hesitant to provide the information (2008). Since it is placed at the end, a comfort zone is established during the survey, and respondents are more willing to give this information after completing the survey (Hair et al., 2008). Regarding the layout of the survey, it was also important to place each of the four images of the labels on separate pages so the respondents would not be confused. Each label was given a separate page with their own questions to ensure the questions that were answered corresponded to the correct label. Before the survey was sent out, it was reviewed by members of the research committee so that changes could be made accordingly. Revisions and edits were completed and the survey was ready for administration. Refer to Appendix A for the complete survey instrument. Before administration could begin, the sample population was determined.

3.4 Sample Population Determination

A convenience sample was chosen for this research due to time and budget restraints, and convenience to the administrator. Convenience sampling involves non-probability sampling, and it is feasible for a high number of respondents to be surveyed in a short period

of time due to the fact that the sampling is based on pure convenience (Hair et al., 2008). A sample population was generated from students at North Carolina State University's College of Textiles for the survey administration. This convenience sample was not only chosen due to time and budget restraints, but also because the participants had access to classrooms with computers and could complete the survey online.

The chosen demographic of the study was generation Y, or those born between the years of 1977 and 2002 (Blass, 2005). Generation Y highly respects the brand of labels that were selected for this research. Women's Wear Daily reports that Levi's is one of the top twelve most respected brands among generation Y (Hall, 2007). Twenty-six percent of generation Y respondents believed that Levi's was a more respectable brand than other denim brands. Levi's are well known for their jeans, and the 501 Boyfriend Cut Jeans and the Superlow 518 Jeans are two of the most popular among Generation Y (Hall, 2007). Therefore, the labels that were chosen were relevant for the respondents' age. After determining the sample population, the survey was sent for approval through the IRB.

3.5 IRB Approval

The Institutional Review Board for the Protection of Human Subjects in Research (IRB) approval was required before administration of the survey could begin. The purpose of the IRB approval is to ensure protection of the rights of human research subjects that were used for the research. IRB approval was obtained twice throughout the research process. Approval was granted before the first pilot test, and also before the survey was administered

in classrooms. A second approval was required after changes were made in order to finalize the survey. The required paperwork was completed, and a copy of the survey and methodology was sent to the IRB office for approval. The approval notices were received, and the documents are shown in Appendices B and C.

3.6 Survey Administration

The survey administration included a pilot test and classroom administration. The survey was initially developed using an online survey tool, and was sent out to thirteen graduate students at the College of Textiles through e-mail for the pilot test. Lavrakas states that one pilot test is necessary to be sure the questions are understood and there are no obvious biases (2008). Feedback was requested on the clarity of the questionnaire. Respondents for the pilot test suggested that each label should have an explanation with the image; however, this suggestion would not be suitable for the research because the questions pertain to understanding of the label based on the image alone. Another suggestion was that the questions regarding "effectiveness" of the label be worded more clearly because it was not understood whether effectiveness meant environmental effectiveness or effectiveness of the consumer following directions. These suggestions were taken into account and the survey was modified accordingly before the classroom administration. The responses for the pilot study were not included in the data collection, as the primary purpose of the pilot study was to evaluate the understanding of the questionnaire.

After the pilot study, six professors were contacted through e-mail for their permission to access their classrooms. The classrooms were chosen based on the fact that they were taught in computer labs, and the students could complete the survey online. Five professors responded and allowed access to their classrooms for survey administration. Three of the professors taught more than one section of a class, so eight separate classes were given the opportunity to participate over a two week time span. Each class was presented with a brief presentation explaining the research and survey and a link to the survey was provided. A presentation was given in each class in order to maintain consistency in the methodology. Fifteen minutes of class time was given to complete the survey. The response rates and results for the pilot study and classroom administration are presented and discussed in Chapter 4.

Chapter 4: Results and Analysis

4.1 In-store Search Results

As Chapter 3 discussed, an in-store search was conducted in order to select the eco-labels that would be tested for this research. Table 4 presents the findings from the in-store search. The only label found that was used for this research was in Macy's, which was the Levi's Care Tag for Our Planet label that instructed consumers to donate after use. The other three stores did not generate relevant results that satisfied the objectives of this research.

Table 4
Eco-label In-store Search

Location	Time (minutes)	Findings
Belk	20	Big Star Jeans label for recycled materials
Target	20	No eco-labels concerning clothing. Labels found concerning the label itself (recycled paper) for Levi's Jeans and Champion athletic apparel
JC Penney	30	None
Macy's	20	Levi's jeans label (donate after use)

4.2 Pilot Study Results

The pilot study consisted of sending the survey to thirteen graduate students, and feedback was requested regarding the clarity of the survey. Ten graduate students responded and completed the pilot survey. Two graduate students presented feedback for clarification and corrections on the survey. One suggestion was that each label have an explanation with

the image, while another suggestion was that “effectiveness” of the label be clarified. After the pilot study was completed, the survey was administered in classrooms.

4.3 Survey Administration Results

One hundred fifty responses were obtained from the classroom administration of the survey. Table 5 shows the responses for each day of the classroom administration and shows the number of students who responded (out of the number of students in the classrooms) and the average response rate for the classroom administration.

Table 5

Classroom Administration Responses

Day	Number of Responses/Number of Students in Classrooms	Response Rate (%)
1	21/30	70
2	63/84	75
3	23/27	85.19
4	39/44	88.63
5	7/15	46.67
Total	**174/200**	**87%**

4.4 Characteristics of the Sample Population

A demographic profile of the respondents' was established through an analysis of the survey responses using statistical analysis of frequencies and comparisons of means. The sample was drawn from the North Carolina State University College of Textiles. For this research, 82.5 percent of respondents were female, while 9.8 percent were male. These percentages are reflective of the balance between male and female undergraduate students at the College of Textiles enrolled in the Textile and Apparel Technology Management (TATM) department. The N.C. State University Fall 2011 Enrollment Report shows that students in the TATM department are 80.78 percent female and 19.22 percent male (2011). The average age of respondents for this research was approximately 19. The majority of the participants majored in Fashion and Textile Management (56.7%), while the second-largest group majored in Fashion and Textile Design (21.1%). The majority of respondents (37.6%) were Seniors, while 23.7 percent were Freshmen. Also, 18.6 percent of respondents were Juniors, while 11.3 percent were Sophomores. Respondents were also asked to select how many jeans they purchased per year. It was found that 63.4 percent purchased 0-3 jeans annually. Almost one-third (31%) of the sample population purchased 4-6 jeans per year, and a small percentage (4%) purchased seven or more jeans per year. Figures 9-12 summarize the demographic profile and purchase behavior for the respondents.

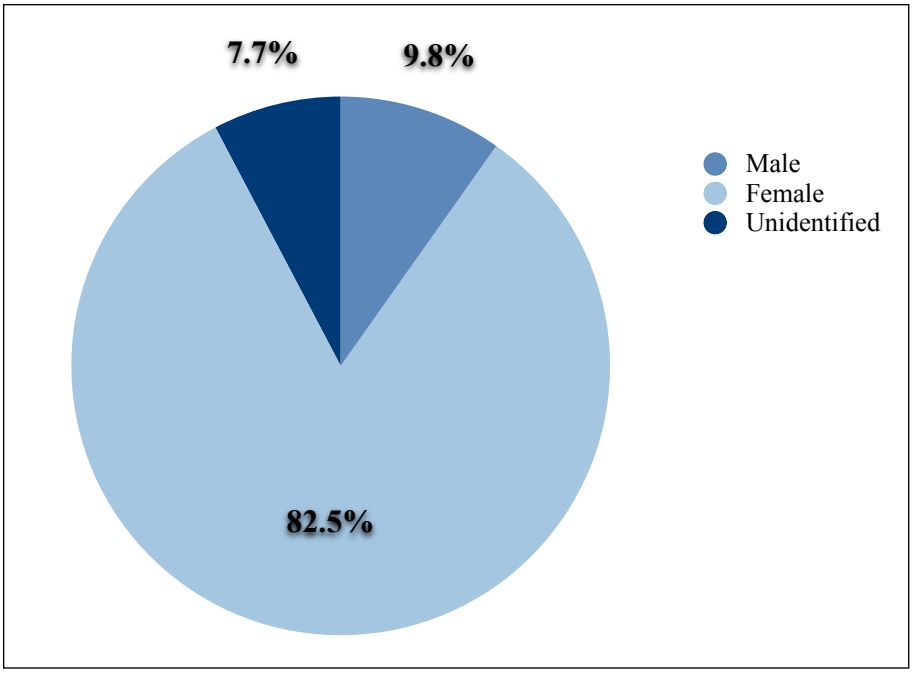

Figure 9: **Gender of Respondents in Percentages**

4.5 Eco-label Importance to Consumers

The first objective of the research was to determine if eco-labels were important to consumers. Questions were asked regarding how often consumers pay attention to hangtags, specific reasons for which labels are important to consumers, and questions relating to their concern for the environment. When asked how often respondents pay attention to hangtags on clothing, the majority (33.5%) indicated "sometimes". Only 2.6 percent said "never", and 14.4 percent said they rarely pay attention to hangtags. Twenty-eight point four percent said "often", and 19.6 percent said "always". Therefore, almost half of the respondents often or always pay attention to labels and hangtags when shopping for apparel.

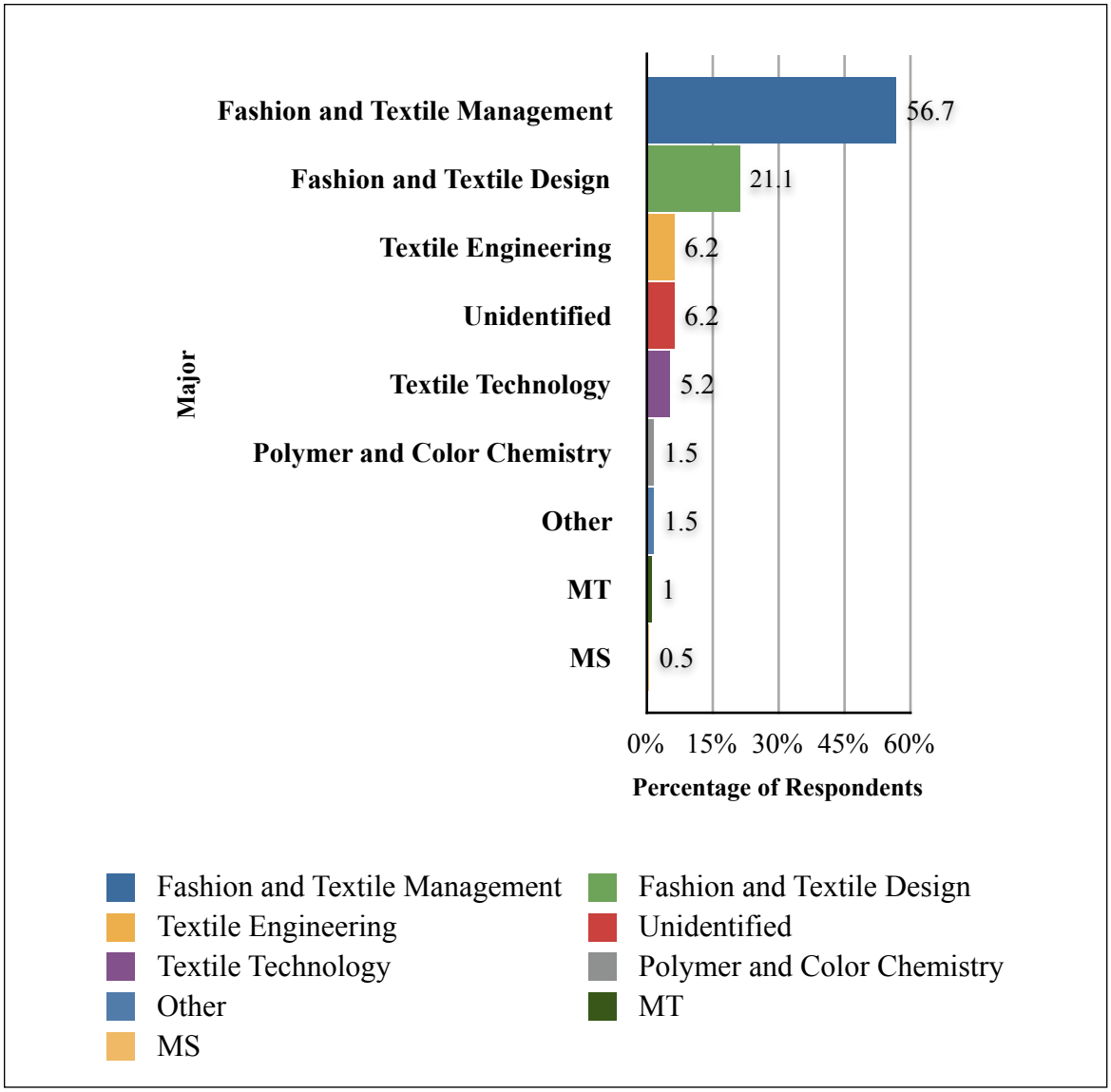

Figure 10: **Major of Respondents**

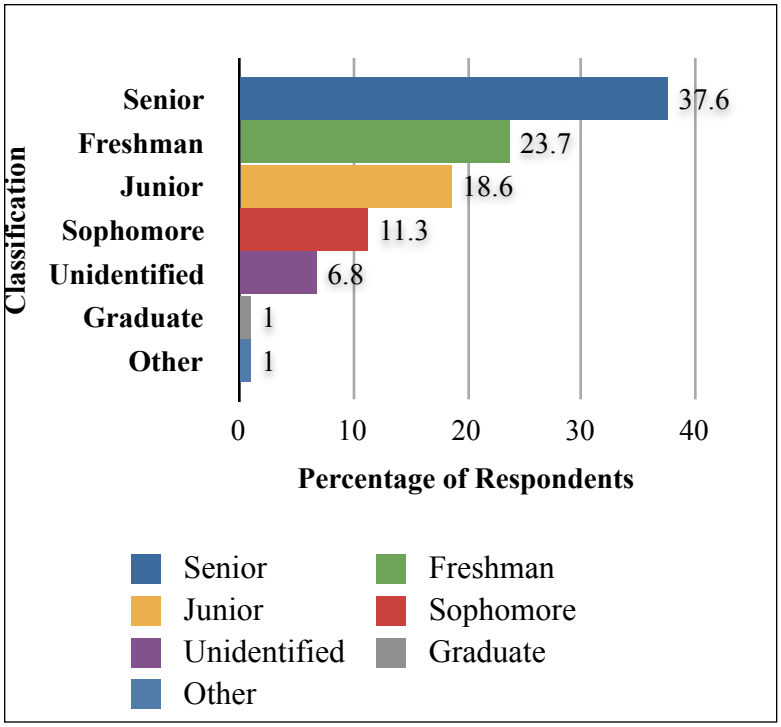

***Figure 11*: Classification of Respondents**

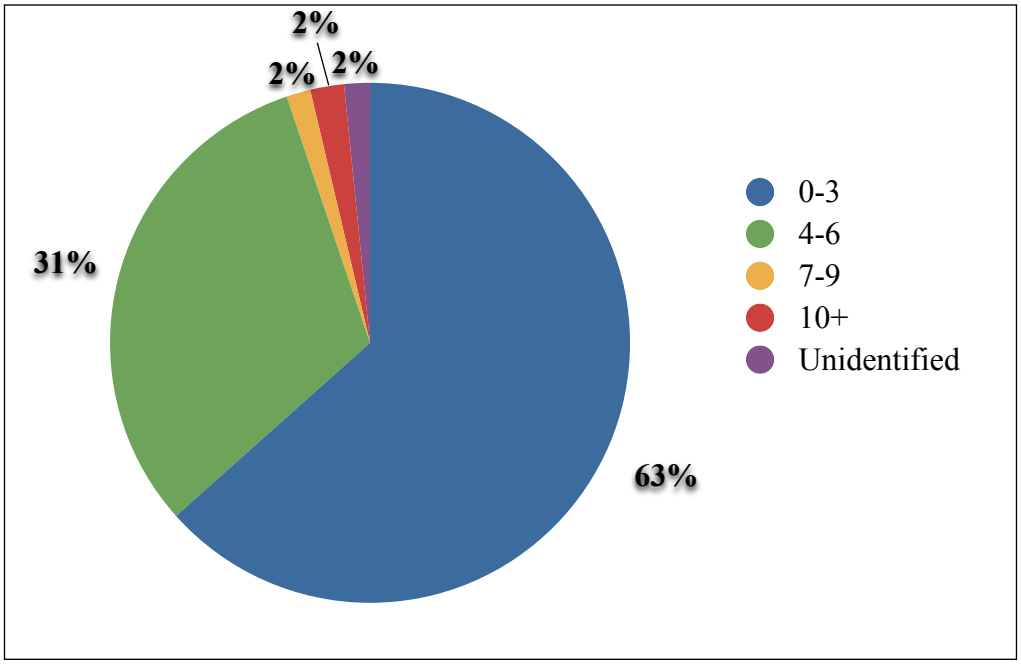

***Figure 12:* Number of Jeans Purchased Annually in Percentage of Respondents**

The respondents were also asked to select the purposes for which labels are most important to them while shopping, and more than one answer could be selected from the list. The answers included fit, price, quality, environmental friendliness, brand name, materials, and comfort. There was also an option to select "labels are not important to me", which only 2.1 percent of respondents chose. The two highest answers among the purposes for which labels are most important while shopping were fit and price, at 88.1 percent each. Quality was the second-highest (63.9%), followed by comfort (56.2%). Brand name and materials were the next highest answers that were chosen, at 56.4 percent and 40.2 percent, respectively. Finally, environmental friendliness was the least important factor, at 18.6 percent. The responses are consistent with Cotton Incorporated's study results (2011). When considering factors of importance for purchasing jeans, Cotton Incorporated reported that environmental friendliness was the lowest rated factor at 23 percent. The highest factor of importance for the Cotton Incorporated study was also consistent with this research; fit was the number one factor at 92 percent (2011). Figure 13 presents the responses for the factors relating to label importance for this research.

It was also important to see how consumers viewed the environment and sustainability, so when asked "how concerned are you personally about the state of the environment?", the majority (57.7%) stated that they were generally concerned. Only 0.5 percent of respondents stated that they were not at all concerned about the current state of the environment, and 6.7 percent said they were not extremely concerned. Twenty-three point

two percent said that they were neutral, while 10.3 percent were very concerned. Therefore, almost 70 percent of respondents have a concern for the environment's current state.

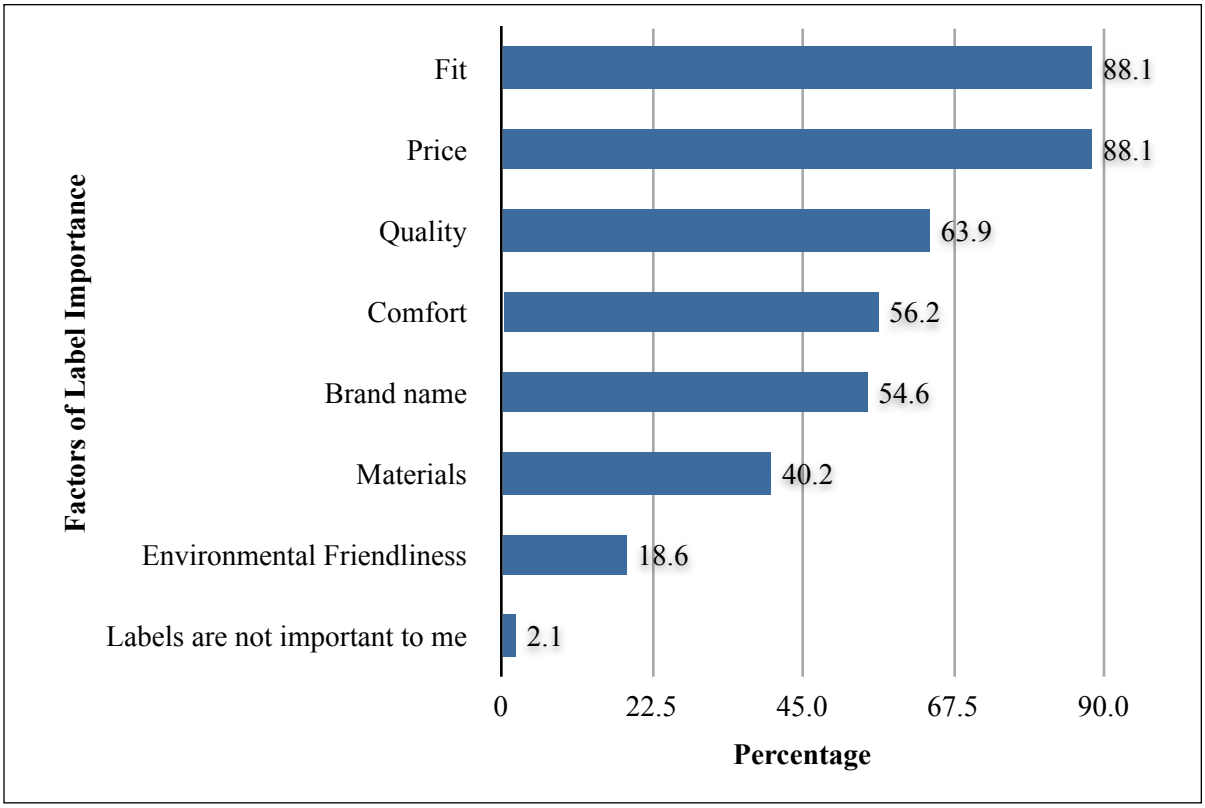

Figure 13: **Factors relating to Label Importance in Percentages**

In order to evaluate how respondents viewed sustainability, the survey asked respondents to describe *sustainable apparel* in their own words. The majority of respondents used the word "environment" in their answers. For example, many respondents stated "apparel that doesn't harm the environment", "apparel that does not impact the environment

in a negative way" and "environmentally safe". The answers varied in terms of what specifically impacted the environment. The respondents' answers noted materials (fabrics and fibers), processing (dyes and machinery), manufacturing, recycling, packaging, factory conditions, and waste. Though the majority of respondents believed that the phrase *sustainable apparel* meant apparel that did not harm the environment, some respondents also believed that the term *sustainable apparel* related to the quality of the product(s). For example, a few respondents defined the phrase as "apparel that lasts long and is worth the money", "clothes that last for a longer time without ripping or wearing too much", and "clothing that holds up against wear and tear". The majority of respondents related *sustainable apparel* to the environment, which coincides with the definition of sustainability as defined by the Brundtland Commission, shown in the Glossary of Terms (Baxter et al., 2009). The complete table of answers that describe sustainable apparel is shown in Appendix D.

Finally, it was also important to identify consumer perceptions of their willingness to follow directions on labels, and whether or not they believed that their willingness could impact the environment. When asked to choose an option from "disagree" to "agree", almost half of respondents (49.5%) chose "somewhat agree" that their willingness to follow directions on environmental clothing labels would impact the environment. Twenty-nine point four percent were neutral, 13.9 percent said that they agree with the statement, and only 5.7 percent chose "somewhat disagree" and "disagree". Overall, the majority of respondents

either somewhat agreed or agreed with the statement, which indicates that they believed that their willingness to follow directions could have an impact on the environment.

4.6 Comparison of the Four Eco-labels

Questions were asked for each of the four eco-labels in order to determine eco-label understanding, importance, effectiveness, and the willingness of consumers to follow directions on post-purchase labels. Statements relating to understanding, importance and effectiveness were given for each of the four labels, while the statement of willingness to follow directions were only stated for the two post-purchase labels, Care Tag for Our Planet and Care to Air. Statistical analysis was used to compare the answers and determine the results from the research. SPSS Statistics software was used to analyze the results and calculate the means for the responses. The answers were coded from a five point Likert scale: disagree (1), somewhat disagree (2), neutral (3), somewhat agree (4), and agree (5). Tables 6 through 9 illustrate the respondents' results for each label, illustrating the number of responses (N), the minimum and maximum, mean, and standard deviation for each statement. The means were compared for each of the statements in order to meet the objectives of the research. String data was also collected from the unstructured questions where respondents gave their own answers.

Table 6

Label 1: Care Tag for Our Planet

	N	Minimum	Maximum	Mean	Std. Deviation
I clearly understand the purpose of the above label with respect to sustainability.	184	1.00	5.00	4.3152	0.95733
The environmental message of the above label is important to me as a consumer.	182	1.00	5.00	3.7088	1.05528
I believe the information suggested in the above label would be effective for reducing the environmental impact of jeans.	183	1.00	5.00	3.5246	1.13786
I would be willing to follow the directions on the above label to the best of my ability.	181	1.00	5.00	4.4862	0.75724
Valid N (listwise)	179				

Table 7

Label 2: Waterless

	N	Minimum	Maximum	Mean	Std. Deviation
I clearly understand the purpose of the above label with respect to sustainability.	184	1.00	5.00	2.9457	1.34988
The environmental message of the above label is important to me as a consumer.	184	1.00	5.00	3.2446	1.08137
I believe the information suggested in the above label would be effective for reducing the environmental impact of jeans.	184	1.00	5.00	2.7609	1.19990
Valid N (listwise)	184				

4.6.1 Understanding

Objective two of this research was to determine which of the four labels were most/ least understood by consumers. For each of the labels, respondents were asked to choose the answer that best describes the statement, "I clearly understand the purpose of the above label with respect to sustainability." The Organic label had the highest mean at 4.42 while the Waterless label had the lowest at 2.95. The Care Tag for Our Planet label and the Care to Air label had very similar means, at 4.32 and 4.29, respectively.

Table 8

Label 3: Care to Air

	N	Minimum	Maximum	Mean	Std. Deviation
I clearly understand the purpose of the above label with respect to sustainability	181	1.00	5.00	4.3923	0.79285
The environmental message of the above label is important to me as a consumer.	182	1.00	5.00	3.9396	0.91740
I believe the information suggested in the above label would be effective for reducing the environmental impact of jeans.	180	1.00	5.00	3.9611	0.94759
I would be willing to follow the directions on the above label to the best of my ability.	182	1.00	5.00	3.9560	1.05025
How often would you use the clothes line kit that is included with the above label?	181	1.00	5.00	3.1326	1.44302
Valid N (listwise)	178				

4.6.2 Importance

Objective three of the research was to determine which label's environmental message was most/least important to consumers. Respondents were asked to choose the answer that best describes the statement, "The environmental message of the above label is important to me as a consumer." The results showed that the Organic label had the highest mean at 4.05, while the Waterless label had the lowest at 3.24. The Care to Air label was the second-highest at 3.94, followed closely by the Care Tag for Our Planet label, with a mean of 3.71. The order of means, from highest to lowest, was the same for the four labels for statements regarding importance as it was for the statements related to understanding.

Table 9

Label 4: Organic

	N	Minimum	Maximum	Mean	Std. Deviation
I clearly understand the purpose of the above label with respect to sustainability.	180	1.00	5.00	4.4167	0.81792
The environmental message of the above label is important to me as a consumer.	182	1.00	5.00	4.0495	0.95349
I believe the information suggested in the above label would be effective for reducing the environmental impact of jeans.	181	1.00	5.00	3.8122	1.12451
I would plant the seeds that are included with the above label.	180	1.00	5.00	3.8278	1.27209
Valid N (listwise)	177				

4.6.3 Effectiveness

The fourth objective of the research was to determine consumer's perceptions of the effectiveness of the label for reducing environmental impact, i.e. which label does the consumer believe to be most/least effective? Respondents chose the answer that best describes the statement, "I believe the information suggested in the above label would be effective for reducing the environmental impact of jeans." Results showed that the Waterless label had the lowest mean at 2.76, while the Care to Air label had the highest at 3.96. The Organic label had the second-highest mean at 3.81, while the Care Tag for Our Planet label had a mean of 3.52.

4.6.4 Willingness to Follow Directions

The fifth and final objective of the research was to determine the likelihood that consumers would follow directions on the post-purchase labels, the Care Tag for Our Planet label and the Care to Air label. The Care Tag for Our Planet label directed consumers to donate their jeans to Goodwill when the jeans were no longer needed, while the Care to Air label not only directed the consumers to donate to Goodwill, but encouraged them to air-dry their jeans, rather than machine-dry them. When comparing the means of the two labels, the Care Tag for Our Planet label was higher, at 4.48. The Care to Air label's mean was 3.96. As shown in Appendix A, the survey asked respondents how often they would use the clothesline kit that was included with the Care to Air label. Respondents could select "never, daily, weekly, monthly" or "I don't know." Almost one-third, 30.4 percent, said they would

use the clothesline monthly, while 19.1 percent said weekly. Twenty-three point seven percent said they would never use it, 2.6 percent said they would use the clothesline daily, and 16.5 percent of respondents said they did not know how often they would use it.

Each label also asked the respondent, "please state what you believe the above label is directing you to do." Respondents were asked to describe the directions in their own words for the Care Tag for Our Planet label and the Care to Air label. The responses were compiled into a list responses for each label were color-coded based on the answer that was given. Correct answers were designated with a yellow mark, while incorrect answers were designated with a pink mark. The Care to Air label had more than one direction on it, so responses that correctly noted both directions were designated with a blue mark.

The Care Tag for Our Planet label's directions stated: machine wash cold with like colors, tumble dry medium, warm iron if needed, and donate to Goodwill when no longer needed and care for our planet. The Care Tag for Our Planet label's purpose was to reduce the rate of landfill waste and encourage consumers to donate their jeans rather than discarding them. The majority of responses correctly stated that the directions were telling them to "donate" or "recycle" the jeans when they are no longer needed. Many also explained the washing instructions as well. For example "the above label is directing me to wash in cold water because that saves energy. Iron 'if needed' to save energy as well. And donate to goodwill so that the product does not go to waste." A small number of people related the label only to the care instructions, and responded "how to manage my clothing" or "care requirements." Though the majority of respondents added that the purpose of donating to

Goodwill was to reduce waste in landfills, a few respondents felt negatively about the message of the label. For example, one respondent stated, “I don’t like being told what to do and I am not going to donate to a particular organization because they told me to. It should be my choice whom I donate to.” Some respondents also did not feel that the message was genuine: “... to me, [it] is only for marketing purposes. They put this on the label so they can advertise eco friendliness and this may appeal to the eco friendly audience.” A few responses noted that the label was not concerned with sustainability. For example, “I feel like the label is directly focused on the care for the product, and the environmental concerns are almost an afterthought.” The large majority of the responses stated that the overall message of the Care Tag for Our Planet label was to donate or recycle the jeans for environmental reasons.

The Care to Air label directed consumers to machine wash cold, line dry when possible, and donate to Goodwill. The primary purpose of the Care to Air label was to reduce energy use and encourage air-drying jeans. The Care to Air label also encouraged consumers to donate the clothing. The same statement was posed for the Care to Air label as it was for the Care Tag for Our Planet label: “Please state what you believe the above label is directing you to do.” Almost all of the responses stated the label was telling them to dry the clothes on a line rather than machine drying. Only approximately 15 percent of the respondents noted the Goodwill donation instruction on the label in addition to the line-drying instructions. The majority of responses correctly noted that line drying was done to conserve energy. A few respondents did not know why the label was asking them to line dry. One respondent noted that “This is too much work and it doesn’t make your jeans last longer. If I had jeans that

were damaged by the dryer I would return them and never purchase the brand again." The answer related the line drying to quality, rather than sustainability. A few respondents also stated they would not use the clothesline kit that was included, and would not air dry their jeans. Some responses noted that air drying "take a lot of extra time" and "leads to a stiff pair of jeans." One respondent noted the fit of the jeans, stating that "the issue is that most of the time I WANT my jeans to be dried in the dryer to shrink them back to the fit I like." While some stated they would not air dry their jeans due to fit and comfort reasons, other respondents said they would air dry. One response stated, "I would probably do this... I do not usually dry my jeans anyways I usually hang them around my room to dry." One respondent also said they already hang dry their jeans "because it just makes sense [and it] makes the jeans smell/feel better." Another respondent said they would use the clothesline that was included, but would not pay additional money for it. Some respondents said they would air dry if they were given instructions as to how to do it. Overall, the respondents noted the air drying instructions that the Care to Air label gave, but did not consider the donation instructions along with the air-drying instructions. There seemed to be a divide whether the respondents would air dry the jeans or continue machine washing, mostly due to the comfort and fit of the jeans after machine washing, as well as the time that air drying may take. Refer to Appendices E and F for the complete list of responses for the Care Tag for Our Planet label and the Care to Air label's directions, respectively.

Overall, it was found that the Organic label was the best understood label, and also had the most important environmental message for respondents. The Waterless label was the

least understood label in relation to sustainability, and also had the least important environmental message as perceived by the respondents. Respondents believed that the Care to Air label was the most effective label for reducing the environmental impact of jeans, while the Waterless label was the least effective. Consumers would be more willing to follow the directions on the Care Tag for Our Planet label than the directions on the Care to Air label. A summary table of the means for the four labels and objective statements are shown in Table 9.

Table 10

Summary of Label Means

	I clearly understand the purpose of the above label with respect to sustainability.	**The environmental message of the above label is important to me as a consumer.**	**I believe the information suggested in the above label would be effective for reducing the environmental impact of jeans.**	**I would be willing to follow the directions on the above label to the best of my ability.**
Label 1: Care Tag for our Planet	4.3152	3.7088	3.5246	4.4862
Label 2: Waterless	2.9457	3.2446	2.7609	--
Label 3: Care to Air	4.3923	3.9396	3.9611	3.9560
Label 4: Organic	4.4167	4.0495	3.8122	--

Chapter 5: Conclusions

5.1 Conclusions

The major objective of this research was to measure consumer perceptions of four types of Levi's eco-labels on jeans. The research sought to answer the question, "are eco-labels important to consumers?" The five sub-objectives of the research were to determine: (1) the importance of eco-labels to consumers, (2) which label is best/least understood by consumers, (3) which label's environmental message is most/least important to consumers, (4) which label the consumer believe to be most/least effective in reducing environmental impact and finally, (5) the likelihood that consumers will follow directions on post-purchase labels.

5.1.1 Objective 1

The answers to objective one were determined through introductory questions regarding consumers' shopping behavior and environmental views. The survey responses demonstrated that consumers do pay attention to hangtags and labels when shopping for clothing because close to half of the respondents said they often or always pay attention to the hangtags. However, it was found that the most important factor or reasons that consumers read the labels were fit and price. These were the top factors for label importance while shopping for apparel, while environmental friendliness was the least chosen factor of importance for labels. These results are consistent with previous research from Cotton Incorporated (2011). While consumers stated that they are reading the labels, the major

reason they are reading them is not related to environmental concerns. However, respondents stated that they were concerned for the environment. It was found that 70 percent were generally or very concerned for the current state of the environment. Also, the majority of respondents (60.4%) believed that their willingness to follow directions on labels could potentially have an impact on the environment.

When asked to define sustainable apparel, the large majority of respondents were able to correctly identify sustainable apparel as apparel that does not negatively impact the environment. Cotton Incorporated's survey conducted in 2006 asked consumers what *sustainable* meant in relation to apparel. The majority of their sample (43%) believed sustainable apparel was durable and high quality, and 32 percent stated they did not know what sustainable meant as related to clothing (2010). The quantitative data from the North Carolina State University student sample understood sustainable apparel far better than Cotton Incorporated's sample, as the large majority related sustainability to the environment. While a small amount of respondents indicated that they believed sustainable apparel to be of high quality, overall, the sample understood sustainable apparel. The results may indicate that sustainability is becoming better understood among consumers.

The study by Darnall, Pointing and Vazquez-Brust (n.d.) highlighted the importance of environmental education in order for eco-labels to have an impact on the environment. Consumer behavior is the driver behind eco-labels. While this research has shown that consumers are concerned for the environment, and they believe that their willingness to follow label directions could make an impact, Darnall, Pointing and Vazquez-Brust identify

three major consumer traits that would drive eco-labels. First, consumers must have an understanding about environmental issues. Second, consumers must feel empowered to address the environmental issues. Finally, consumers must trust environmental groups and the government to provide them with information about environmental issues. Environmental education is a critical driver for eco-labels. Also, Laric and Sarel noted in their study results that people with a college education show more skepticism towards a label than those with a high school education (1981). Skepticism is a result of misguided or miscommunicated concepts from companies, and education efforts have the potential to relieve skepticism and build trust among consumers.

Overall, consumers generally understand sustainability, they have a concern for the environment, and they believe that their willingness to follow label directions would impact the environment. Therefore, it was determined that eco-label are important to consumers; however, while consumers are reading labels, they are not reading them for environmental reasons. Company initiatives and education efforts have not reached consumers in a way that would make them actively search for environmental information on labels.

5.1.2 Objective 2

When determining the best/least understood label by consumers, it was found that the Organic label was the best understood label in terms of sustainability, while the Waterless label was the least understood. The Waterless label had only an image on the label with no text or explanation. As discussed in Chapter 1, it was determined that labels are strongest

when they are both visually and verbally appealing (Tang, Fryxell, & Chow, 2004). Since the Waterless label did not have explanations or wording to express what the image was conveying, consumers may not have understood the label's message. The Organic label's purpose, however, was clearly stated on the hangtag that read "100% Organic Cotton". The label was also shown with the jeans behind the image of the label, which makes the image visually and verbally appealing to consumers. Therefore, visual and verbal communication may have been a factor that affected consumers' understanding of eco-labels.

5.1.3 Objective 3

The third objective was to determine which label's environmental message was most/ least important to consumers. The results showed again that the Organic label had the most important message while the Waterless label had the least important message. The material of the jeans were the most valued factor among respondents, which is supported by previous research. Hustvedt and Bernard found that apparel (socks) labeled as *Organic* was highly valued among consumers, and consumers were willing to pay more for socks that were Organic (2007). The results for understanding and importance of environmental message in this research were identical, which may indicate that a consumer's understanding impacts whether or not the label's message is important to the consumer, further indicating the need for environmental education.

5.1.4 Objective 4

The fourth objective of the research was to determine the perceptions of which label would be most/least effective for reducing environmental impact. It was found that the Care to Air label was believed to be the most effective, while the Waterless label was believed to be the least effective label. The importance of the environmental message and effectiveness of reducing environmental impact did not have the same results, indicating that while consumers cared most for the Organic label's message, they believed that the air-drying label would have the best result for reducing the environmental impact of jeans. The label that was the most important to consumers was not the label that consumers believe is the most effective in reducing environmental impact.

The review of the literature in Chapter 1 indicated that increasing the amount of information on a label increases the perceived credibility of the label (Teisl, Rubin, & Noblet, 2008. The Waterless label had no information with the image, and therefore respondents may not have believed this label to be credible in terms of reducing the environmental impact of jeans. Chapter 3 explains, however, that the Waterless label has saved 172 million liters of water for Levi's (2011). Consumer education regarding processing and water use would aid in consumer understanding about the effectiveness of reducing water in the supply chain for jeans. The respondents may feel the label would be more effective if they had information about water use and the textile industry.

5.1.5 Objective 5

The final objective was to determine the likelihood that consumers would follow the directions on post-purchase labels. The Care Tag for Our Planet label directed consumers to air dry their jeans when possible. Consumers indicated that they would be more likely to follow the directions on the Care Tag for Our Planet label than the Care to Air label. The Care to Air label directed consumers to air dry their jeans, and also donate them to Goodwill. The majority of consumers only recognized the air-dry directions in the Care to Air label and respondents expressed concern about the fit and comfort of the jeans, as well as time limitations. The responses regarding the directions on each label may indicate that consumers are less likely to notice more than one direction on a label, or only be willing to follow one direction. The Care Tag for Our Planet label was the more convenient label for consumers, and therefore, was the label that more consumers would follow.

Interestingly, the Care to Air label was the label that respondents chose as the most effective label for reducing environmental impact, yet respondents stated they would be least likely to follow the directions for this label. Respondents mentioned that air drying changed the feel and fit of the jeans, while others expressed concern about not understanding why air drying jeans would be important. Some respondents said they would use the clothesline kit that was included with the jeans if there were directions for how to use it. Consumers believed that the Care to Air label would be effective in helping the environment, however, they would be less likely to follow the directions.

5.1.6 Summary of Results

In summary, the Organic label was rated the highest for understanding and importance of environmental message. The Organic label clearly stated what the purpose of the label was. Consumers also believed that the Organic label had the most important environmental message. The Waterless label was rated the lowest for understanding, importance, and effectiveness. The Waterless label did not have information associated with the environmental message, and therefore consumers may have been unable to connect with the message, as the qualitative data showed that respondents felt that the label would not be important or effective for reducing environmental impact. The Care to Air label was rated highest for the ability to reduce environmental impact, indicating that consumers may not necessarily care the most for the label they believe will have the least impact on the environment. Consumers would also be more likely to donate their jeans, rather than air dry their jeans. While more companies are beginning to change their initiatives, such as their materials or their processing, consumer behavior may be harder to change. Companies should educate consumers about the benefits of their behaviors after purchasing apparel in order for their sustainability initiatives to have a positive effect on the environment. If consumers are unwilling to follow the directions on the post-purchase labels and unwilling change their behaviors, the goals of reducing energy through air-drying and reducing waste by extending the product lifecycle will not be reached. Though these results satisfied the objectives of the research, there were limitations of the research.

5.2 Limitations of Research

There were various limitations of the research. First, the research was limited to students at the College of Textiles at North Carolina State University. The students were a convenience sample that was used for the research, so there may have been a convenience sampling bias. The College of Textiles teaches students about sustainability and apparel, so the students may have already had knowledge that other consumers outside of the college may not have.

Second, the classroom administration of the survey distribution was limited to students with access to computer labs in the College of Textiles. This limitation may have narrowed the spectrum of the different majors that completed the survey due to the fact that the classes within computer labs are primarily fashion design courses. Therefore, students who are studying Polymer and Color Chemistry or Textile Engineering, for example, did not have a wide representation in the sample.

Finally, the research only measured perceptions of Levi's labels due to time constraints. The four labels that were used in this research are not a complete representation of the many eco-labels that are available for apparel products. Since the labels were Levi's labels, this also confined the labels to apparel only, specifically jeans. Other textile categories, such as home furnishings, were not included in the research. Recommendations for future research are listed below.

5.3 Recommendations for Future Research

For future studies that pertain to eco-labeling and consumer perceptions, a broader range of apparel labels could be used for a more complete representation of eco-labels within the apparel category. This research could include labels from different types of companies and product categories. Only one brand was used for this study, and multiple eco-labels from multiple brands could give a stronger study of consumer perceptions, and not limit the results to only one brand of eco-labels.

A broader consumer base could also be surveyed for a more representative sample. Due to time constraints and budget, a convenience sample was used at the University for this research, but a more extensive study may give different results. The College of Textiles may also present a bias towards apparel studies, so the general public's opinion could give different results. For a more representative sample, a study could be done across the United States or even internationally. An international study could also test how culture and region affect perceptions of eco-labeling and sustainability in general.

Future research for labeling could also compare how consumer perceptions vary across different product categories outside of apparel. For example, electronic eco-labels and food eco-labels could be tested to see how consumer perceptions may change across different product categories. Eco-labels are not only limited to apparel, so conducting a comprehensive consumer perception test across multiple categories would give better insight as to what

labels are understood best and why, and also what environmental messages are most important to consumers.

Finally, it is recommended that government and companies prioritize educating consumers about environmental issues, and also educate consumers about how products aim to reduce environmental impact. Consumers will be less skeptical about labels if they understand the message behind the label, and will therefore trust companies more. Government should not only educate consumers, but standardize labeling initiatives in order to reduce misinformation and greenwashing that could potentially result from eco-labels. Consumer education is one of the most important drivers, and government and companies should be held responsible for providing consumers with education and information regarding the environment.

Chapter 6: References

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Appendices

Appendix A: Survey Instrument

***1. You are being asked to take part in a research study. Your participation in this study is voluntary. You have the right to be a part of this study, to choose not to participate or to stop participating at any time. The purpose of research studies is to gain a better understanding of a certain topic or issue. If you do not understand something in this form it is your right to ask the researcher for clarification or more information. If at any time you have questions about your participation, do not hesitate to contact the researcher Emily Peterson or Lisa Parrillo-Chapman.**

The purpose of this study is determine consumer awareness of sustainable product labeling. The survey results will become part of the published thesis research conducted by Emily Peterson.

Your participation in this study is voluntary. You have the right to be a part of this study, to choose not to participate or to stop participating at any time. The information in the study records will be kept strictly confidential. Data will be stored securely on a password protected server accessible only by the principal investigators. SSL encryption will be used for transmitting survey results. No reference will be made in the thesis which could link you to the study.
There is no monetary compensation awarded for participation in this study. However, one benefit of participating in this study is the knowledge that you will have contributed your expertise and experience to a greater body of work. There are no foreseeable risks associated with completing this survey.

If you have questions at any time about the study or the procedures, you may contact the researcher, Emily Peterson or Lisa Parrillo-Chapman, (919-513-4020) at the College of Textiles, NCSU, and Raleigh NC 27695-8301. If you feel you have not been treated according to the descriptions in this form, or your rights as a participant in research have been violated during the course of this project, you may contact Deb Paxton, IRB Administrator, Box 7514, NCSU Campus (919-515-4514).

By checking the "I accept" box I acknowledge I have read and understand the above information and am over the age of 18. I may print a copy of this agreement for my records. I agree to participate in this study with the understanding that I may withdraw at any time.

- ○ I accept
- ○ I do not accept

Section I

I would like to ask you some general questions regarding your shopping behavior for jeans and what your thoughts are regarding clothing labels and sustainable clothing. Please answer the following questions to the best of your ability.

2. How many pairs of jeans do you purchase annually?

- 0-3
- 4-6
- 7-9
- 10+

3. How often do you pay attention to hangtags on the clothing that you buy?

- Never
- Rarely
- Sometimes
- Often
- Always

4. For what purposes are labels most important to you when shopping for clothes? Please check all that apply.

- Fit
- Price
- Quality
- Environmental friendliness
- Brand name
- Materials
- Comfort
- Labels are not important to me

5. How concerned are you personally about the current state of the environment?

- Not at all concerned
- Not extremely concerned
- Neutral
- Generally concerned
- Very concerned

6. Please choose the answer that best describes the following statement: You believe that your willingness to follow directions on environmental clothing labels will impact the environment.

- Disagree
- Somewhat disagree
- Neutral
- Somewhat agree
- Agree

7. Please describe, in your own words, what "sustainable apparel" means to you.

Section II

You will see several different labels for jeans. For each label, you will see an image of the label followed by a series of questions about the label, sustainability, environmental impact, and your thoughts about the label. If needed, please use the following definitions to help you answer the following questions.
Sustainability is defined as meeting the needs of the present without compromising the ability of future generations to meet their own needs.
Environmental impact is defined as any positive or negative change to the environment, which comprises of the global system including air, water, land, flora, fauna, as well as human beings.

Label 1: Care tag for our planet

8. I clearly understand the purpose of the above label with respect to sustainability.

Disagree | Somewhat disagree | Neutral | Somewhat agree | Agree

9. The environmental message of the above label is important to me as a consumer.

Disagree | Somewhat disagree | Neutral | Somewhat agree | Agree

10. I believe the information suggested in the above label would be effective for reducing the environmental impact of jeans.

Disagree | Somewhat disagree | Neutral | Somewhat agree | Agree

11. I would be willing to follow the directions on the above label to the best of my ability.

Disagree | Somewhat disagree | Neutral | Somewhat agree | Agree

12. Please state what you believe the above label is directing you to do.

Label 2: Waterless

13. I clearly understand the purpose of the above label with respect to sustainability.

Disagree | Somewhat disagree | Neutral | Somewhat agree | Agree

14. The environmental message of the above label is important to me as a consumer.

Disagree | Somewhat disagree | Neutral | Somewhat agree | Agree

15. I believe the information suggested in the above label would be effective for reducing the environmental impact of jeans.

Disagree | Somewhat disagree | Neutral | Somewhat agree | Agree

Label 3: Care to air

16. I clearly understand the purpose of the above label with respect to sustainability

- Disagree
- Somewhat disagree
- Neutral
- Somewhat agree
- Agree

17. The environmental message of the above label is important to me as a consumer.

Disagree | Somewhat disagree | Neutral | Somewhat agree | Agree

18. I believe the information suggested in the above label would be effective for reducing the environmental impact of jeans.

Disagree | Somewhat disagree | Neutral | Somewhat agree | Agree

19. I would be willing to follow the directions on the above label to the best of my ability.

Disagree | Somewhat disagree | Neutral | Somewhat agree | Agree

20. How often would you use the clothes line kit that is included with the above label?

Never | Daily | Weekly | Monthly | I don't know

21. Please state what you believe the above label is directing you to do.

Label 4: Organic

22. I clearly understand the purpose of the above label with respect to sustainability.

Disagree | Somewhat disagree | Neutral | Somewhat agree | Agree

23. The environmental message of the above label is important to me as a consumer.

Disagree | Somewhat disagree | Neutral | Somewhat agree | Agree

24. I believe the information suggested in the above label would be effective for reducing the environmental impact of jeans.

Disagree | Somewhat disagree | Neutral | Somewhat agree | Agree

25. I would plant the seeds that are included with the above label.

Disagree | Somewhat disagree | Neutral | Somewhat agree | Agree

Section III

Please provide the following demographic information about yourself.

26. Are you male or female?

- Male
- Female

27. How old are you?

28. What is your major?

- Fashion and Textile Management
- Fashion and Textile Design
- Polymer and Color Chemistry
- Textile Engineering
- Textile Technology
- MS
- MT
- Other

29. What is your classification?

- Freshman
- Sophomore
- Junior
- Senior
- Graduate
- Other

Appendix B: IRB Approval 1

North Carolina State University is a land-grant university and a constituent institution of the University of North Carolina

Office of Research and Innovation
Division of Research Administration

NC STATE UNIVERSITY

Campus Box 7514
Raleigh, North Carolina 27695-7514

919.515.2444 (phone)

919.515.7721 (fax)

From: Carol Mickelson,
IRB Coordinator

North Carolina State University
Institutional Review Board

Date: November 7, 2011

Title: Eco-Labeling in the Apparel Industry: A Comparative Analysis of Environmental Labels on Jeans.

IRB#: 2359

Dear Ms. Peterson,

The research proposal named above has received administrative review and has been approved as exempt from the policy as outlined in the Code of Federal Regulations (Exemption: 46.101. b.2). Provided that the only participation of the subjects is as described in the proposal narrative, this project is exempt from further review.

NOTE:

1. This committee complies with requirements found in Title 45 part 46 of The Code of Federal Regulations. For NCSU projects, the Assurance Number is: FWA00003429.

2. Any changes to the research must be submitted and approved by the IRB prior to implementation.

3. If any unanticipated problems occur, they must be reported to the IRB office within 5 business days.

Please forward a copy of this letter to your faculty sponsor, if applicable. Thank you.

Sincerely,

Carol Mickelson
NC State IRB

Appendix C: IRB Approval 2

North Carolina State University is a land-grant university and a constituent institution of the University of North Carolina

Office of Research and Innovation
Division of Research Administration

NC STATE UNIVERSITY

Campus Box 7514
Raleigh, North Carolina 27695-7514

919.515.2444 (phone)

919.515.7721 (fax)

From: Carol Mickelson, IRB Coordinator

North Carolina State University

Institutional Review Board

Date: February 9, 2012

Title: Eco-labeling in the apparel industry: A comparative analysis of environmental labels on jeans

IRB#: 2359

Dear Ms. Emily Peterson,

Your addendum to the study named above has been reviewed by the IRB office, and has been approved. This approval does not change the original IRB approval expiration of the project.

If you have any questions please do not hesitate to contact the IRB office at 919.515.4514.

Sincerely,

Carol Mickelson
NC State IRB

Appendix D: Sustainable Apparel Definitions

Q7. Please describe, in your own words, what "Sustainable Apparel" means to you.
- using dyes that are not harmful to the environment -safe and fair labor practices - factories that have eco - friendly production facilities - shipping and transportation that is eco friendly- -packaging and hang tags that are eco friendly and recyclable
a product that does not hard the environment
A product that is produce in a way that is sustainable and in a way that is not detrimental to the environment.
Any apparel that is manufactured with the minimum amount of environmental resources used. i.e. water, energy.
apparel in which the material it is made out of is recycled or has some type of benefit to the environment, whether it be in material, production process, packaging. etc.
apparel made available to the public in a way that does not have a noticeable impact on the local or global environment.
apparel made of recycled or organic fibers, which can be made with low impact on the enviroment (no harsh processing, chemicals, or dyes)
Apparel made using materials and practices that actively try to reduce waste and pollutants
apparel that can be reused or recycled. apparel that may last longer than the usual clothing items
Apparel that can be reused, and recycled
Apparel that can be worn for a long time.
apparel that conserves an ecological balance by avoiding depletion of natural resources.
apparel that does not harm the environment in its production
Apparel that does not harm the environment, or significantly cuts back on waste or harmful chemicals that are usually found in apparel products and processes.
Apparel that does not impact the environment in a negative way before, during, and after production.
apparel that does not pollute the environment
Apparel that doesn't harm the environment.
Apparel that harms the environment less than similar products (less of an impact)
apparel that has been created using materials and processes that has a very low environmental impact on the earth.
apparel that has been created using sustainable processing/manufacturing as well as recycleable materials
Apparel that has been derived from ecofriendly materials or that can be recycled after use, reducing the impact of waste on the environment
Apparel that has been made from either recycled materials or manufactured in a manner that did not significantly pollute or harm the environment.

apparel that has been manufactured using a green process, from the material to the machinery etc.
Apparel that has little to no impact on the environment. This goes from collection and processing of materials, to the energy used for the making of the product to the assemby and shipment to the store. Then finally it should have minimal to no impact upon disposal or should be able to be used for a long amount of time.
apparel that has minimal impact on the environment (during production) and is easily recyclable
Apparel that holds up well that you can keep for a long period of time
apparel that is both comfortable and well priced, while environmental friendly.
apparel that is developed to help impact our environment while keeping its orginial functions
Apparel that is developed using recycled material.
apparel that is eco-friendly and lasts a long time
Apparel that is eco-friendly.
Apparel that is environmentally friendly
Apparel that is friendly towards enviorment and can be reused or recycled
Apparel that is friendly towards the environment. I use to think of organic cotton and other organic fibers but after doing research for a class project, I have concluded that these fibers are not as sustainable as marketed.
Apparel that is made form recycled goods that has a long wear life.
Apparel that is made from materials that are environmentally friendly
Apparel that is made from materials that are renewable
apparel that is made from recycled materials, or apparel made from less detrimental manufacturing processes, etc.
apparel that is made of recycled,recyclable materials in an environmentall friendly way
apparel that is made with considerations for the environment; doesn't produce large amounts of waste and resources when being made
Apparel that is made with low impact on the environment and will decompose eventually, or any clothing that was made with leaving the lowest carbon footprint.
Apparel that is manufacteured with sustainble practices.
Apparel that is manufactured in a way that did not hurt the environment and would not hurt the environment if disposed of.
Apparel that is not as harmful to the environment as current processes of making apparel is now
Apparel that is produced and manufactured in ""Green"" terms to provide any sort of pollution or chemical harm to the environment.
Apparel that is produced in a sustainable manner. This means the apparel was produced using only sustainable materials, factory conditions, etc.
Apparel that is produced in a way that doesn't harm the environment and uses resources effectively
Apparel that is produced with being environmentally friendly.

apparel that is produced with ecoconscious manufacturing/production methods and ecofriendly fabrics/ materials. Materials can vary from organic fibers/fabrics to recycled or reused materials...there is more than one way to by sustainable
Apparel that is produced with minimum impact on the environment.
Apparel that is sustainable, for wear and in the environment.
apparel that keeps the environment in mind and uses environmentally friendly processes and materials
Apparel that lasts long and is worth the money.
Apparel that uses environmentally friendly materials and processes and can be recycled.
Apparel that uses recycled fibers or fabrics, and apparel that uses dyes that have a minimal amount of pollutant chemicals.
apparel that was created using little resources, low production waste, natural fibers
Apparel that was created using more earth friendly products and methods of productions.
apparel that was developed through a process that did not harm the envriomentduring production or harmed the enviroment less than usual.
Apparel that was produced in an environmentally friendly process and that can be recycled later, or that is made of recycled materials
Apparel that will benefit the environment in numerous ways.
Apparel that will last long, contains recycled content, has a plan or option for recycling in the future, using materials and processes that are not excessively damaging to people or the environment.
apparel which is economically friendly
Being efficient with what you have and leaving little waste and being enviornmentally friendly as possible.
biodegradable clothes. clothes that are made from recylced material and made through using ""green"" resources
Buying clothing that was either made from recycled fabrics or with organic cotton
can be recycled or was made out of material that was recylced
Clean energy
Clothes that are made out of eco-friendly material and available for recycle.
Clothes that have had their material recycled so that they are used again.
Clothes that use less energy/resources to make. No use of toxic chemicals.
Clothing designed with environmental impact in mind, using resources that affect the environment (in a negative way) as little as possible
Clothing that does not harm the environment while being produced.
Clothing that does not use harsh chemicals that are harmful to the environment and materials that are eco-friendly and re-usable
Clothing that doesn't need to be washed as much or items that are made of repurposed or recycled items.

Clothing that has been created using production, marketing, and transportation methods that are environmentally friendly.
clothing that has been manufactured in the most environmentally friendly way, all the way from making the fibers to disposing of used clothing.
clothing that has little or a less affect on the environment than the competition
clothing that holds up against wear and tear
Clothing that is environmentally friendly and will help to reduce the negative impact on the environment.
Clothing that is environmentally friendly through all processes, from fiber to yarn, to dyeing/finishing, to packaging, until it reaches the end consumer
Clothing that is made from recyclable material or created without harsh chemicals
Clothing that is made in a sustainable fashion that avoids excess use of resources
Clothing that is made in such a way that it does not greatly impact or harm the environment, while being easily reproduced.
Clothing that is produced without much harm to the environment.
clothing that is recyclable and friendly to the environment
Clothing that was produced with less harm to the environment, possibly made out of natural or recycled fibers, that will last me for years.
Clothing that when used, benefits the environment.
clothing that will last a long time under the conditions it is ment for
doesn't hurt environment
eco-friendly. sustainable processes.
ecofriendly and recyclable or biodegradable
enviromentally friendly
environmentally friendly clothing
environmentally friendly from production of the fibers to the care of the jeans after purchase.
Every process used in creating the garment was eco friendly from the making of the fibers to the dying and printing of the fabric. Also a minimized amount of waste and if there is any waster, it would be reused and recycled.
Helping the environment
High-quality clothing that lasts a long time and is made with sustainable materials and processes
I suppose it means that the garment is versatile in ways it can be worn, but also well-made and high quality.
I think it means apparel that is made from eco-friendly material, but is sustainable for any type of wear.
I think sustainable apparel could mean several things. Sustainable clothing could include clothes made from recycled materials but it could also mean clothes that last for a longer time without ripping or wearing too much.
I think that it means how the apparel is made and how it impacts the environment.

I think that sustainable fashion uses smarter ways to process materials and being aware of potentially harmful affects of certain processes.
it lasts a long time
It makes the world more happy
It means functional and fashionable clothing products that are created in a less environmentally damaging way.
It means that it is a product that does not harm the environment or cause long term damage to any field. Instead, it is able to create its own feedback loop without much waste or pollution.
items made of recycled fibers, or garments reconstructed out of old garments
Made in green factories with reduced waste and pollution
Materials that were made from recycled material or can be reused later.
Natural fibers harvested in environmentally safe manners, manufacturing processes that use minimal chemical treatments, and the encouragement of donating or consigning apparel items you no longer wear
not impacting the enviroment in terms of product production and waste after use
Produced in a way that was not harmful to the environment.
Production of the yarns is environmentally friendly. The people who assemble the clothing are treated fairly and compensated reasonably.
Quality, good fit, long life expectance, and good price.
Recyclable, eco-friendly
recycled clothing
recycled, using uncommon fibers to create apparel
renewable
Something that has been made out of recycled fibers or fabrics, something that will go on to be repurposed once it's finished being used, or something that is biodegradable. Also, if the processes for creating it were more harmful to the environment than the processes for creating a normal version of that garment would be, then it is not sustainable.
Something that you can use multiple times, and is environmentally friendly.
sustainable aparel lets the materials be recycled and cut down on waste in the enviroment. the process of manufacturing and production also has to do with the sstainability of a poduct. The less energy that is used in the process of production is more sustainale the product is.
Sustainable apparel describes apparel that will last a very long time.
Sustainable apparel is an article of clothing that has been made in such a way as to have a minimal impact on the environment-i.e., organic cotton, or a material that does not require a lot of energy to prepare.
Sustainable apparel is apparel made of materials that is environment friendly and is durable. If something is sustainable, it should last a longer time and therefore assisting the environment by using less material on a particular garment or over a purchasing year.

Sustainable apparel is apparel that during the production the producers take into account the effect that creating the product will have on the environment, and how to create the product in a way that is the least harmful, without causing drastic social and economical changes.
Sustainable apparel is apparel that is high-quality and long lasting, but is easy to dispose of when the time comes.
Sustainable apparel is apparel that is made from natural or recycled resources, so that the apparel item does not harm the environment in the making.
Sustainable apparel is apparel that keeps its form, fit and color for a long period of time. This time is generally longer than an average piece of clothing. Sustainable apparel therefore is usually more expensive because of the quality of the material.
sustainable apparel is apparel that minimizes the negative effects that clothing usually has on the environment, it also includes processes that can be used for a long period of time without severe consequences to the environment.
Sustainable apparel is apparel that will not only last longer than most, but when they do get to the point of needing to be thrown out, can be reused to possibly produce other clothing (like recycling for clothes)
Sustainable apparel is clothing that can be consumed or used in a way that does not harm the environment. This can either be through the materials or processes used to create and ship the garment, or through the reducing/reusing/recycling actions after the garment is finished being used by the consumer.
Sustainable apparel is clothing that can be repurposed or clothing that wasn't put through as many chemical or mechanical processes as ""normal clothing"" was/is. Also, clothing that can last the wearer a great deal of time.
Sustainable apparel is clothing that does not harm the environment in the materials used and the production of the garments. Could also be used to describe clothing made from recycled goods.
sustainable apparel is clothing that is environmentally friendly and uses no chemicals and can be recycled
Sustainable Apparel is environmentally friendly clothing that may be biodegradable.
Sustainable apparel is made from organic materials and developed from an eco-friendly means of production that has little to no negative affect on our environment.
Sustainable apparel is made with products that are sustainable (not going to run out or endanger the existance of) or made by sustainable methods. For example, choosing dyes that use less water would be a sustainable choice.
Sustainable apparel is the end product resulting from a process that conserves natural resources throughout each step of the supply chain, from fiber to manufacturing to shipping. The purest form of sustainable clothing is created from recycled materials that can also be re-recycled in the future after reaching the peak of it's ""apparel life"".
Sustainable apparel makes me think of eco-friendly, green products.
Sustainable apparel means environmental friendly clothing or garments made from recycled products.

Sustainable apparel means recycled fibers or yarns. I suppose it could include using organic or natural materials, but I think that has more to do with not putting as many chemicals in the material or the environment. Sustainable is more about re-using and finding the best ways to get the most out of materials that can be re-grown or re-produced with a minimum effect on the environment.
Sustainable apparel means that the clothing is produced along an environmentally friendly supply chain AND that the material is of good enough quality to either last the consumer or have an alternate use.
Sustainable apparel means that the life cycle of that garment is eco-friendly throughout its whole cycle: processing, manufacturing, transportation, and end use.
Sustainable apparel means that the materials and the processes used to make the jeans were environmentally friendly.
Sustainable apparel means that the processes, materials or any other way the product was brought to me is considered environmentally friendly, therefore a better purchase for the well being of the environment.
Sustainable apparel means that your apparel is most efficiently made using the least amount of resources and causing the least amount of environmental harm.
sustainable apparel means to me that the clothing will last a long time and will not be harmful to the environment if discarded
Sustainable apparel means to me that the production of the product left little waste therefore the negative impact on the environment was lower.
Sustainable apparel means: apparel that is ethnically and environmentally conscience. Sustainable apparel can only help the world not hurt it by the means of the product life.
sustainable apparel to me are fabrics that were made eco-friendly in all steps of the process. from cleaning the raw material to processing the yarns. i do know not all ""eco-friendly"" product are healthy for the environment. as well sustainable apparel are clothing and garments that last for a period of time.
sustainable apparel to me is just the use of eco frinedly fibers put into a garment
Sustainable apparel to me means clothing that is made out of materials that are enviromentally friendly and clothing that you has many purposes and can be used mutiple times.
Sustainable means that clothes are made of eco-friendly materials and aren't using any harsh dyes
taken from renewable resources, produced through processes that have limited pollutant emissions
That it doesn't to the growing effect that humans and their products have on the environment. Can be reused, takes less energy and materials to make
The apparel was used from recycled materials and/or used with longevity of the product in mind.
the materials used in the clothing will be reused and the item was made in an environmentally friendly manner
The opposite of fast fashion. Apparel that will last for several seasons, washes, and wears. Apparel made from sustainable materials or produced in sustainable processes. The manufacturer take steps to ensure its processes are not harmful to the environment or if they are, they are minimal.
The sources and production methods of that product are as environmentally friendly as can be.

This means that the perhaps the cotton is organicaly grown, or the manufacturing process is environmentally-friendly.
to be sustainable is to use our earth's resources most wisely and in a way that is least harmful to the environment. sustainable apparel is just that. these garments are made using resources and processes that create the least amount of detriment to our already diminishing environment. this is very important to me.
To me it means that the materials used are sourced in a way that does not harm the environment and that the product is produced in a way that also has the least possible impact on the environment/atmosphere.
To me, ""sustainable apparel"" means apparel made out of recyclable materials or materials that have been recycled into the garment.
To me, sustainable apparel is apparel that is made through a process that does not pollute and has a minimal effect on the environment.
To me, sustainable apparel means clothing that is made out of recycled clothing in order to positively impact our environment.
To me, sustainable apparel means garments that do not ultimately harm the environment during production or any time there after. Also, the apparel can be reused in other applications.
Using recyclable material
Total

Appendix E: Care Tag for Our Planet Label Direction Interpretations

Q12. Please state what you believe the above label is directing you to do.
- donate clothing once it is no longer needed to good will instead of throwing it away
act environmentally friendly and donate your old jeans to goodwill so that they can be reused
After you are done wearing the jeans or are tired of them, donate them so that someone else can purchase and wear them
As the consumer, the label is instructs to use minimal energy in laundering the denim and to not throw away the clothing after use.
Aside from providing washing, drying, and iron instructions, it is indicating that when the consumer no longer wants the item, to donate to Goodwill so that it will not be dumped in a landfill.
Asking consumers to donate their jeans to Goodwill is an effective way to make a smaller difference. However, this label is only effective if there is a hangtag, or pledge signed at purchase that directs the consumer to this information on the tag.
BUY LEVIS. washing and care instructions... please recycle & donate.
care for item and what to do after the item is sed.
care requiremtents
Do not throw the garment away in a landfill.
don't throw away your jeans after you are done with them
Donate clothes after no longer needed.
Donate clothes in order to cut down on more clothing manufacturing, recycle clothing to help the environment
Donate clothing I'm no longer using.
Donate instead of throwing them away
Donate jeans to goodwill for others to use after you no longer need them. promote recycling used clothing
Donate old clothes
donate old jeans
Donate old jeans to Goodwill instead of putting them in the trash.
Donate old products so they don't end up in a landfill
Donate the jeans hen you are done wearing them, so someone else can se them
Donate the jeans so that someone else can reuse them, rather than simply throw them away when they get worn out.
Donate the jeans to charity
donate the jeans when i no longer want them
donate to goodwill

Donate to Goodwill or another store when I grow tired of my jeans. Wash in cold water and medium heat to conserve energy.
Donate unneeded jeans to a charity after you are done wearing them
donate unwanted apparel items to reduce landfill waste
donate your clothing once you are finished instead of throwing it away
Donate your clothing so it can be reused and not thrown away, creating extra waste.
donate your clothing when you dont want it or you outgrow it instead of just throwing it away
donate your jeans instead of throwing them away so that we can cut down on waste.
Donate your jeans rather than throw them away
donate your jeans so they will not simply go int o the trash
donate your jeans when you are done with them so that someone else can utilize them
Donate your jeans when you no longer want them anymore
Donating these jeans to people who can buy or receive and use them further instead of throwing them away to go to landfills.
exactly what it says and the goodwill part, to me, is only for marketing purposes. They put this on the label so they can advertise eco friendliness and this may appeal to an the eco friendly audience.
Give your pants to charity
Hand down your jeans to another persdon in need when you no longer want them instead of throwing them away
How to care for the product and a suggested place to donate the clothing when you no longer wear it
How to manage my clothing
how to take care of the jeans so they last their longest and reminding to recycle them
how to wsh the garment and what to do with it after you are done
I believe it is giving washing instructions that will consume the least amount of energy. A habit consumers need to be aware of in general. In addition, the note to donate to Goodwill may promote a form of recycling that consumers never thought of before.
I believe that it is directing me to wash my clothes the right way and then donate it to goodwill when I don't want them anymore.
I believe that it is suggesting that you dontate the pair of jeans to goodwill when you are done with using them
I believe the above label is directing me to donate my jeans to Goodwill instead of throwing them away, as well as be environmentally conscious in general.
I believe the label is asking consumers to use cold water for washing, medium heat for drying, only use an iron if needed, and donate the jeans so someone else can use them.
I believe the label is directing the consumer to recylcle the pair of jeans after they could no longer benefit the consumer in order to help our environment

I don't like being told what to do and I am not going to donate to a particular organization because they told me to. It should be my choice whom I donate to. Plus goodwill sells merchandise that is given to them for free not give it away to the needy
I feel like the label is directly focused on the care for the product, and the environmental concerns are almost an afterthought
i mostly understand that this label is telling you how to best care for your jeans rather than keeping sustainability in mind
I want my clothes to last, so it's obvious I want to launder it properly. The Goodwill icon makes sense, as well.
In regards to sustainability, the label is saying to ""recyle"" the jeans by passing them on to someone else, instead of throwing them away.
Instead of throwing away old jeans, you should donate them so that they can be re-used
instead of throwing away the jeans donate them to be used by someone else
Instead of throwing away your clothing donate it.
Instead of throwing your old clothes out, you should donate them to a charity like goodwill.
Instead of trashing the jeans when I am done, sending them to fill a landfill to sit for decades, Levi's is asking me to donate to Goodwill or Salvation Army. I guess this helps sustain in the short term, but what about the long term? Eventually those jeans won't be fit to wear and will end in the landfill. How about using materials that have a shorter decomposition time and a small impact on the earth when they do decompose.
It has the washing instructions and also asks to donate so that they do not become a part of the landfill, instead someone else will get use out of them
It is basically addressing how to care for your jeans and at the bottom it states the information about the planet, but some people may overlook that because it is pretty vague.
It is directing me to donate the jeans to goodwill so that someone else can wear them and a new pair doesn't need to be produced
It is directing me to give my jeans to someone who needs it, but I don't see it making a significant difference.
It is directing me to take the jeans to goodwill when the jeans are no longer needed in order to effectively recycle them for someone else's use
It is instructing you to donate the jean to goodwill, rather than just toss them out into the landfill.
It is stating that when you are done with the pair of jeans, donate them to a goodwill store or some store that follows the same procedures so they can be reused.
It is telling me how to take care of the jeans and when I am unable to wear the jeans any longer, to donate them to sustain the earth
It is telling you the proper washing instructions. It also tells you what to do with your jeans when you do not want them anymore. It ask you to recycle your jeans for other peoples use.
It just states how to care for the iterm versus the impact on the environment
It seems to be most concerned with the after-life of the product.

It tells you to donate the jeans once you've gotten your use out of them.
It's telling me NOT to throw my jeans away, but instead, donate them. Except, I'm not really feeling this label. I think most people (if they actually read labels) will say ""Why donate? Why goodwill? How is this caring for the planet?
It's telling me to repurpose my jeans or do something with them. That I should not throw them away when I'm done using them.
Its saying to wash cold, which is good for the environment. It is also saying to donate to goodwill when you are done with them which is awesome because it is reuse at its best
know how to take care of the jeans properly so they sustain a long life and then recycle by donating to goodwill when they no longer fit or no longer want
machine wash cold with like colors, tumble dry medium in dryer, use a warm iron if needed and donate to goodwill when no longer needed to care for a planet in a renewable way
machine wash cold with like colors, tumble dry on medium, and warm with an iron if needed
Machine washing cold uses less energy than machine washin hot or warm. Tumble dry medium also reduces energy as well as the iron on warm. The message to donate to Goodwill puts the idea in my head that when I'm done with that pair, I can donate it to someone else who might use it
Not put the apparel in a landfill when you are done with it.
Not throw away the jeans but recycle them by donating to goodwill
nothing
Once you no longer want the jeans, donate them to upcycle.
Once you've worn the jeans as much as you want donate them to good will so that they will be reused instead of thrown away
ont throw your jeans out when you're done and donate them
other than proper care, it is encouraging the wearer to ""recycle"" the jeans when they no longer what, thus producing less waste
recycle
Recycle
Recycle a pair of denim instead of throwing it out.
Recycle apparel when it is no longer needed
Recycle jeans so other people can use them after you are finished instead of throwing them away
Recycle my jeans so that they don't affect the environment negatively.
Recycle the garment by donating it when you are done with it.
Recycle the garment rather than putting it in the landfill
Recycle the jeans so that they go to someone else rather than taking up space in a landfill. Also, the donation of clothing such as jeans would have a positive environmental impact because it lowers the demand for new jeans to be produced using new energy
recycle your jeans

Recycle"" the clothes after use is succeeded.
Reduce/reuse/recycle is what comes to mind.
reminding me to Donate my items after I am done using them
Reuse the jeans by donating them to someone who will wear them again.
Take care of jeans during ownership, and be sure to pass them to someone else maybe less fortunate when desire for jeans is no longer, or when they no longer fit.
Take care of the jeans so they will last and recycle them when done using them.
take it to good will after i'm done
Take my clothing to goodwill when I am done with it so that others can use it afterward.
Tells you how to wash and dry jeans and suggests that you donate jeans when you no longer need them
Tells you the care directions, then tells you to donate to goodwill after you're done using the product
the above label is directing me to care for the jeans the proper way (the same way the company would care for the jeans). it is also informing me of a choice i could make when im done wearing my jeans.
The above label is directing me to was cold to reduce energy, and to properly care for the garment so that it lasts for a long time. It is also telling me to be conscious about my impact on the planet through this pair of jeans, and my daily tasks. It is also telling me to care for the planet by donating the garment, rather than discarding it in the trash- adding to landfill space.
The above label is directing me to wash in cold water because that saves energy. Iron ""if needed"" to save energy as well. And donate to goodwill so that the product does not go to waste.
The above label is first directing me to properly care for the garment, and then once the jeans are no longer needed by me, the label directs me to donate them to Goodwill. It is suggested that by doing this I will be caring for our planet.
The above label is requesting that I donate my clothing to Goodwill once I am done with them so they can be reused rather than just throwing them in the trash and forgetting that they ever existed.
The above label is showing me how to properly care and launder the jeans. It is also advising an earth friendly way to dispose of the jeans when I no longer need them. I interpret this to be more of a moral and ethical direction geared towards giving to the needy rather than to be environmentaly friendly. I also prefer to look at it in a giving sense rather than an environmental one.
The above label is trying to persuade consumers to recycle their denim products by donating to people in need.
The directions to take care of the garment and how to discard it when you're done with using them.
The labe is telling you how to take care of the garment. when you no longer want the garment to take it to goodwill; so that someone else can now have the garment that you no longer want. Which is better for the enviorment than putting the pants in the trash.
The label above is directing me to donate the jeans when I am done with them instead of throwing them away.
The label above is directing me to machine wash the jeans in cold water with like colors, tumble dry, and warm iron when needed. It is also telling me donate the jeans to Goodwill when I no longer need them.

The label asks you to donate your clothing to goodwill if you do not want you to keep your jeans anymore which would help ""recycle"" the jeans.
The label if directing me on how to wash, dry, and iron the jeans and it is sending out the message to donate the jeans when I am done with them instead of just throwing them out
The label is directing me to was my jeans like normal and make sure I donate or reuse the jeans somehow when I do not want them any longer.
the label is directing me to wash the clothing with cold water- which will not only help the sustainability of the jeans, but also help the environment with using less energy to clean the material. Then it wants the consumer to donate the clothing when it is no longer needed.
The label is insinuating that clothes can be recycled and passed down, before they are thrown away; increasing the demand for the manufacturing of new goods.
The label is instructing the wearer to donate to Goodwill when the product is no longer needed. This will lower the environmental impact of the product.
The label is saying to use cold water to reduce the energy used when washing. Also, to dry medium, again to reduce energy used. Then they want you to donate your jeans to goodwill once you are done with them so that they can be worn by others and not thrown in a landfill.
The label is stating how to care for the product as well as what to do with it when you are done using it.
The label is telling me how to care for my jeans so that they last longer. Also, how to dispose of the (donation) so that they do not end up in a land fill.
The label is telling me how to care for the jeans, and telling me to donate them to Goodwill after I'm done with them, which is the environmentally correct thing to do.
The label is telling me ways I can safely wash my jeans without wasting energy in the washing machine. it is also telling me that these jeans serve mutiple purposes even if you dont want them anymore. they can be donated and used by someone else
the label is trying to instruct the consumer how to care for the product and what to do when disposed of.
The only sustainable part I think the label is asking is to donate to Goodwill once you are done with the pair of jeans.
The tag is telling me to wash it in cold water with light colors, tumble dry on medium, iron it if necessary, and when I no longer wear it, to donate it to Goodwill.
There is nothing on this label that stands out to me that would make me go out of my way to donate these jeans or follow the other directions.
This label is stating the care instructions such as washing and drying methods. It also says how to iron the product and ways to donate to help the planet.
This label is telling me to donate my old jeans hwen I no longer need them in order to dispose of them properly to save our environment.

To cut back on using hot water by washing it in cold water and cut back on wasting energy by tumble drying it on medium and using a warm iron instead of hot. Also to donate the jeans means less of them filling up landfills.
To donate clothes when you are done wearing them.
To donate jeans after use
to donate jeans to goodwill when no longer wanting the jeans in order to care for our planet
to donate jeans when done using them
To donate my jeans once I don't want them any more to reduce waste
To donate the jeans instead of just throwing them away. Recycling the materials.
To donate the jeans to a consignment store when you don't need them anymore in order to reduce your environmental footprint.
To donate the jeans to Goodwill so that someone else can use them and they don't go into a landfill.
to donate your jeans once you are no longer wearing them instead of throwing them away
To donate your jeans when you are done using them to help the community and the environment.
to machine wash in cold water, tumble dry, iron if needed & donate to Goodwill
To not just throw away the jeans or wear them until no one else can wear them, but to give them to charity when you buy a new pair of jeans
to not throw away used apparel, but rather to reuse them by donation ect
To reduce the use of energy when washing clothes and to donate or recycle clothing instead of throwing it away in land fields.
To take care of the jeans so they will last longer.
To take the jeans you no longer wear and donate them instead of just throwing them away
to try and recycle the clothing when finished
Use less energy for washing and drying, and recycling after use period
Use lower energy in caring for the garment Recycle at end of use
Using cold water encourages environmental friendliness, since the impact of using cold water is less than that of using warm water. In addition, the warm dry, and warm ironing both indicate that high temperatures are not totally necessary. The last part encourages reuse of jeans, versus disposal.
using sustainable tactics in machine washing, preparing the fabric, and in clothing 'after life'.
Wash clothes with others of the same color some sort of drying technique use a warm iron to iron (duh!!) Give them to a chartiy when done
wash cloths
Wash on cold with like colors, if drying with a machine do so on medium dry cycle, if needed iron on a warm setting. When finished wearing the jeans donate the jeans to goodwill where someone else will able to wear them.

Wash the jeans in cold water when they are dirty, tumble dry them on a low setting, and donate them when you are done with them, rather than getting rid of them.
Wash the jeans in cold water, saving energy from not using hot water. Tumble dry on medium, in lieu of high, thus saving energy. Donating to Goodwill instead of throwing the jeans in the trash where they would be sent to the landfill instead of given a new chance of life with someone else.
Wash the jeans in unheated water, tumble dry moderately, no need for excessive heat when ironing, and be sure to recycle the jeans when done using them.
Wash the pair of jeans in cold water (less energy used), dry on low heat (again, less energy), iron if needed (less energy) and then donate the pair of jeans so that they can be reused by someone else-don't just trash them.
wash your jeans, and when you dont want them anymore donate them
wash, dry, iron, and take it to Goodwill
Wear the jeans and when I have no more use for them, donate the jeans instead of throwing them away.
Wear the jeans for as long as possible, then look for an option to donate instead of throwing away.
when i am done with the jeans, recycle them
When the garment is no longer useable to my own liking and I want to get rid of it, I should donate it to goodwill so someone else can find use in them instead of throwing them away where they would end up in our landfills.

Appendix F: Care to Air Label Direction Interpretations

Q21. Please state what you believe the above label is directing you to do.
air dry clothes to save energy used by drying clothes in a heated clothes dryer.
Air dry the jeans you own/have purchased.
Air dry your clothing especially jeans instead of drying them in the dryer
Air/line dry denim instead of using energy to dry them.
Allow jeans to air dry instead of using the dryer
avoid using drying machines
avoid using washer machines.
buy levis. and care for the jeans and recycle.
Conserve energy by line drying your clothing
conserve energy by using a clothing line instead of a dryer
Create a line to hang my clothing on to dry it instead of using a machine dryer.
don't use a dryer for your single pair of jeans because it makes a difference (can't actually read the .jpg)
donate the jeans to goodwill when you no longer want them
donate to goodwill
Donate to Goodwill and to not use a machine dryer
dont put these n the dryer
dry clothes on a line instead of using energy to dry them
dry clothes with a closeline to save water
Dry the jeans on a clothes line in order to prevent using the energey from a dryer
Dry your clothes naturally with the air, instead of using heat energy to dry them.
Dry your jeans on a clothes line.
Dry your jeans on a clothesline rather than put them in the dryer, and donate them to charity after they are no longer needed.
Encouraging consumer to reduce, reuse, and recycle
Hang clothes on a closeline instead of using a dryer which would use less energy therefore helping make a positive environmental impact. I wouldnt convert to doing this with all of my clothing, especially not jeans since they tend to be much less comfortable after hang drying, and because of the time element it would take things to dry is a lot longer.
hang dry
hang dry clothes instead of putting them in the dryer
hang dry clothes.
Hang dry in order to cut back on energy, instead of using a dryer.

Hang dry jeans
Hang dry jeans instead of using a dryer
Hang dry my jeans in order to reduce emissions from a regular clothing dryer
hang dry my jeans rather than use a dryer
hang dry your clothes instead of dry them in a dryer
hang dry your denim because denim takes a longer than average time to dry in the dryer. conserve energy.
Hang dry your pants so you aren't using a dryer
hang the jeans to dry them instead of using the clothes dryer
Hang up the clothing on a clothesline to dry instead of putting it in the dryer.
hang your jeans dry instead of using machines
How to clean my clothes
how to dry your clothing in an ecofriendly manner
how to dry your pants and save energy
I believe it is directing me to wash my jeans and then dry them on a line and then give them to goodwill when I don't want them anymore.
I believe it's telling me to line-dry my jeans rather than machine-dry to save energy.
I believe the above label is directing me to line dry my blue jeans instead of using a Dryer as well as donate my jeans to Goodwill instead of throwing them away.
I believe the label is directing consumers to hang dry the jeans to help our environment out
i feel as though it is directing me to prevent the use of a drying machine and use the provided clothes line instead
I'm really not sure what it is asking me to do.
Im not sure why they want you to line dry
In order to reduce the amount of energy consumed by drying your jeans in the dryer, you should hang them up to dry instead. Also donate your old clothes instead of throwing them out.
Instead of drying the jeans in a dryer, use the provided hang line to air dry them.
Instead of drying your jeans in a dryer, hang them up to dry with the clothesline provided.
Instead of putting my jeans in the dryer, I am being asked to line dry to reduce the amount of energy used by the dryer.
instead of using a dryer to dry your jeans and use up energy, use the clothes line to air dry them.
Instead of using a dryer- air drying your jeans.
Instead of using a dryer, hang our clothes on a clothes line. It will help the clothes last longer and decrease on energy use thus being better for the environment.
Instead of using the dryer, it is recommending to line dry it. I can't see many people line drying but maybe drying in their own way.

it is directing me how to wash the jeans, to conserve energy by line drying them instead of using a machine, and to donate to goodwill when i no longer wanted them
It is directing me to donate my clothes and care for the planet.
It is directing you to hang/line dry your jeans in order to conserve energy.
It is directing you to line dry the pants instead of drying them in the dryer. I probably would use this, because I do not usually dry my jeans anyways I usually hang them around my room to dry.
It is directing you to use a clothes line in essence. This is something I grew up doing so following these instructions are easy, however they may be not be as effective for crowded areas and those who live in apartment/condo complexes.
it is direction you to air dry your clothes instead of using the drying. while i personally do air dry a lot of my clothes (because i know the dryer can reduce the lifetime or you clothes) i always dry my jeans to keep them from feeling stiff and to shrink the jeans back into shape
It is reducing electricity usage with dryers and all, and getting user to hang dry, and donate when done with usage.
It is saying to air dry instead of wasting energy on machine drying
It is telling me to line dry when possible so I can reduce my use of energy of a dryer and to also donate to Goodwill.
It is telling the consumer to line dry clothing, instead of using a dryer.
It is telling us to hang-dry clothes instead of using a dryer. While this may be eco-friendly, it also takes a lot more time.
It is telling you to line dry your jeans
It tells you to wash the jeans in cold water, line dry when possible, and then donate to Goodwill.
It's telling me to not throw jean away and to reduce the amount of energy used by dryers by hanging clothes up.
Its trying to reduce consumers from using dryers and hang dry instead
line dry instead of using a dryer
line dry jeans to conserve water
line dry jeans, wash them with cold water to reduce energy consumption, and donate old pairs to Goodwill
Line dry the garment to save water. Also, donate to Goodwill when done with use.
Line dry your jeans after you've washed them so that you are putting less energy towards your jeans
Line dry your jeans instead of drying them in the dryer.
Line dry your jeans, donate them when you are finished
Lost
machine wash cold & donate to goodwill
machine wash cold in the washer, then line dry if possible, and then donate to goodwill when you don't want it anymore to be renewable with our jeans and have a less environmental impact on our planet

Machine wash on cold, if possible to reduce electricity used line dry with the kit supplied, when finished donate the jeans to good will so someone else can wear and reduce impact on environment.
Make a clothes line instead of using a dryer
not dry the jeans and to also donate to goodwill
Reduce energy by hang drying your clothes
Reduce energy consumption and environmental pollution/damage by line drying apparel more often.
Reduce energy consumption by not running a hot dryer.
Reduce energy usage and dry clothes by clothesline instead of electrified or gas-powered drying machine.
Reduce the amount of energery use by line drying your clothing.
Reduce the use of energy when washing clothes and to recycle clothes by donating them to Goodwill.
Save energy by line-drying garments. Note: this proves difficult depending on climate/weather and daily activities/lifestyle
save energy by not using hot water, save energy by not using the dryer and recycle the product when dont using it
show me how to dry hang the jeans after they are washed
Substitute line drying for machine drying.
That by using natural means of washing and re-wearing jeans, one can help sustain the quality of the jeans and increase the wear and tear time.
that is too much work and it doesn't make your jeans last longer. If I had jeans that were damaged by the dryer I would return them and never purchase the brand again.
The above label is attempting to direct you to use a clothes line rather than a dryer to dry your clothing. This is important because it is a good way to cut down on the energy being used by the people of earth that will benefit how the future generations will be able to live.
The above label is directing consumers to air dry their products instead of traditional drying, in order to save energy and care for our planet.
The above label is directing me to air-dry garments by myself and without an actual dryer.
The above label is directing me to care for our planet, and my jeans while leaving a low impact.
The above label is directing me to conserve energy by not drying in a dryer.
The above label is directing me to line dry my clothes, which takes a lot of extra time and space and leads to a stiff pair of jeans.
The above label is directing me to line dry when possible instead of using a clothes dryer.
The above label is encouraging you to reduce the amount of energy you use.
the care for the garment, to use air to dry lothes instead of a dryer.
the hang dry your jeans instead of using elecricty to power a dryer
The label above is telling me how to air dry jeans.

the label above is telling me to machine wash cold to save water, line dry to save energy and donate once i no longer need them.
The label is asking the consumer to air dry clothing with their product instead of drying it with a dryer.
The label is asking you to line dry your clothing as a way to avoid using a drying machine and use less energy.
The label is directing me to go to goodwill to donate the jeans after use, as well as air drying it
The label is directing me to machine wash cold my jeans and to line dry when possible. It also says to donate product after I am finished using it. it also provides a kit of parts to help care for our planet
The label is directing me to use the clothes line provided to dry my jeans instead of placing them in my dryer.
The label is directing the consumer to line dry their jeans instead of using the drying machine.
The label is instructing the wearer to air dry the product when possible. This will increase the life of the product and decrease the energy used in a dryer.
The label is offering suggestions on ways to be more sustainable when caring for the garment. Wash in cold water only, line dry instead of using the dryer, and donate to Goodwill instead of throwing away in the garbage can.
The label is saying to line dry when possible, meaning that instead of using the dryer and using more energy, I should allow them to air dry. Also, instead of throwing them away, I should pass them on to someone else when I don't want them anymore.
The label is telling me to hang dry my jeans instead of putting them in the dryer in order to reduce environmental impacts
The label is telling you to hang dry your jeans whenever possible and providing you a kit to do so.
The lable is telling the consumer to line dry the garment instead of using the dryer.
The Levi hang tag is extremely clear and covers everything that the consumer would do to the jeans, but the line dry kit is confusing to me. I would use it, but I would not pay additional money for it.
The same as the other levi label previously mentioned..care instructions..donate when you can no longer use it
They are trying to get the consumer to save energy and help the environment by air drying jeans. The issue is that most of the time I WANT my jeans to be dried in the dryer to shrink them back to the fit I like. I would use the line dry kit though, maybe for other garments and occasionally the jeans.
This is saying to hang dry your jeans rather than tumble dry them which uses energy. I already do this, because it just makes sense as well as makes the jeans smell/feel better
this labe is telling me to not waste energy drying my jeans in the dryer because they can be dryed outside.
This label is asking the consumer to use the clothes line included to dry the jean, instead of using a dryer that wastes water and degrades air quality. This label also strongly encourages the consumer to donate the jeans to Goodwill Industries when disposing at the end of their performance life.
This label is much more simple and easier to understand as a consumer. It just gives you three easy things to do, which is to machine wash, line dry your clothes (better for environment) and donate back when outgrown.
to conserve energy by not using a dryer

To donate jeans once you are done with them, and to air dry jeans instead of using the energy of a dryer
To dry the clothes on a clothes line instead of using a washing machine.
To dry your jeans on a clothes line.
To hang dry your clothing and not waste energy by drying your jeans
To hang your clothes to dry to reduce your electricity use.
To let your jeans air dry than using the drying machine which can reduce the effect of jeans on the environment
To line dry to save energy when drying your jeans
to use the clothes line when drying clothes, thus cutting back on the amount of time spent using a dryer (which use a lot of energy and power
To use the line included to air dry the jean s
To wash the jeans in cold water. To dry them on the line To donate them to a charity when done with them.
Trying to conserve energy by drying on a clothing line.
Use a close line opposed to drying your jeans in a traditional dryer
use a clothes line to dry your jeans instead of a dryer, save electricity
Use a clothes line to reduce energy used by dryers.
Use a cloths line to cut down on energy used in the care of jeans
Use cold water, and hang dry the jeans. Having them be hung dry reduces energy used. Also, donate to others when you are done with your jeans.
Use less energy by drying your clothes outside
Use less energy to dry clothes. Line drying is just as effective and significantly less impact on the environment. Also very easy to do if people were instructed how.
Use less energy; by line/air drying clothing rather than using a dryer you will be using less energy
Use the clothes line kit instead of using an actual dryer
Use the clothes line so that I use less energy when drying my jeans.
Use the clothesline kit included to air-dry the jeans instead of using a dryer, which produces energy.
use the clothing line provided instead of the dryer to save energy
Use the dryer less to save energy
Use the watching machine and dryer less.
wash and line dry clothes to help enviroment
Wash it in cold water, hang it on the clothes line provided to dry, and donate it to Goodwill when I no longer wear it.
wash jeans, hang dry outside, donate when done with them
wash the apparel with unheated water, dry on a line, not in a dryer, and make sure to donate the product so it can be reused.
wash, iron, donate to goodwill. make a clothesline to avoid using the energy of a dryer.

Ways to take care of the clothing.
You should dry your jeans on a clothes line rather than using energy to machine dry the jeans.