

## ABSTRACT

BOSTIC, NINA CRAWFORD. Knowledge, Attitudes, and Behaviors of College Students in Family and Consumer Sciences Towards Environmentally Friendly Apparel. (Under the direction of Dr. Gary Moore.)

The purpose of this study is to (a) determine attitudes, knowledge, and behaviors of college students toward environmentally friendly apparel, (b) examine a correlation between age in relation to knowledge, attitude and behaviors, (c) examine the difference between student's hometown size in regards to knowledge, attitude and behaviors, (d) study the differences in knowledge, attitude and behaviors between majors (Fashion majors or Family Consumer Sciences).

Surveys were administered to introductory level courses in Family and Consumer Sciences (FCS) at three institutions of higher education. Each class member turned in a survey, for a total of 137 surveys. Data were analyzed using descriptive statistics, t-tests, one-way Analysis of Variance, and Pearson Correlation Coefficients. Based upon the findings, the following conclusions were identified:

1. The FCS students at the three colleges had a low to moderate level of knowledge regarding environmentally friendly apparel.
2. Students are leaning toward having an attitude that supports being environmentally friendly toward clothing.
3. Students generally practice environmentally friendly apparel behaviors.
4. The type of major, whether it's Fashion or other Family and Consumer Sciences, did not show a higher awareness of environmentally friendly apparel.

5. The student's hometown size did not show a difference in their knowledge, attitude and behavior.
6. The student's age did not have a relationship with their knowledge and behavior.  
However, the older students possessed a more favorable attitude toward environmentally friendly clothing.

Knowledge, Attitudes, and Behaviors of College Students  
in Family and Consumer Sciences Towards  
Environmentally Friendly Apparel

by  
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## **BIOGRAPHY**

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In 1992 she attended Meredith College. She completed a double B.S. degree in Fashion Merchandising and Business Management in May of 1996.

Upon graduating from Meredith College in 1996 she began her career with the North Carolina Cooperative Extension Service. She served as an Associate Extension Agent 4-H Youth Development in Wake County. In this capacity she provided leadership to youth programs, trained volunteers, and supervised team members. During her tenure in Wake County, she received her Master's degree in Agriculture and Extension Education.

In 2005, she became a full time student in the doctoral program in Occupational Education at North Carolina State University. She is an adjunct professor at Meredith College teaching in the Department of Fashion Merchandising and Design.

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## Chapter 1 - Introduction

Coco Chanel stated:

Fashion does not only exist in dresses; fashion is in the air, it is brought in by the wind one feels it coming, breathes it in, it is in the sky and on the pavement, it depends on ideas, customs, and happenings. (as cited in Charles-Roux, 2005, p.11).

Coco Chanel's philosophy still possesses the same truth today as when she first made this statement more than a century ago. Tamsin Blanchard, author of *Green is the New Black*, further supports this quote when she states, "The best fashion reflects the time we live in" (Blanchard, 2007, p. 13). One may argue that the current population is presently living in an environmental crisis. In the forward of the book, *Green is the New Black*, Cole (2007) describes this environmental crisis when she states:

...when polar caps are melting, sea levels rising, cotton and clothes production are employing child and underpaid labor, and people are producing their body weight in waste every seven weeks, the green movement must address every aspect of the concerned or thoughtful citizen's life, right down to the clothes we wear" (as cited in Blanchard, 2007, p. iv).

As one contemplates how to live an environmentally friendly life, why wouldn't one make choices toward their clothing consumption as well? In looking for behaviors that address the environmental crises, the search for environmentally friendly clothing becomes an increasing demand among today's consumers (Blanchard, 2007).

Green clothing, eco fashion, ethical fashion, future fashion, sustainability and social responsibility are all terms that address the growing environmental issues facing the fashion industry. The concept of environmentally friendly clothing goes much further than the fiber content of a garment. Green clothing refers to the idea of constructing fashionable attire through the use of fabrics that are friendly to the environment. In addition to environmentally friendly fabrics, the process of making such fabrics is taken into consideration. The nonprofit *Sustainable Technology Education Project (STEP)* defines this focus as clothing that takes “into account the environment, the health of consumers and the working conditions of people in the fashion industry” (Eco-friendly fashion, 2007, What is eco-fashion section, paragraph 1). Environmentally Friendly Apparel also includes growing cotton without pesticides, recycling plastic bottles into textiles, and coloring fabrics without the use of harmful chemicals and bleaches (West, 2007).

In keeping with the consideration of environmental standards, green clothing embraces the importance of fair trade. The Fair Trade Federation (FTF) is an association that supports fair trade among businesses and organizations. FTF (2008) defines fair trade as the following:

Fair trade is a system of exchange that seeks to create greater equity and partnership in the international trading system by

- Providing fair wages in the local context,
- Supporting safe, healthy, and participatory workplaces,
- Supplying financial and technical support to build capacity,

- Ensuring environmental sustainability,
- Respecting cultural identity,
- Offering public accountability and transparency,
- Building direct and long-term relationships, and
- Educating consumers. (<http://www.fairtradefederation.org>, 2008, about Fair trade Section, paragraph 1).

The FTF (2008) does not define fair trade as a “charity.” This federation acknowledges fair trade to ensure fair practices and sustainability in regards to commerce associated with developing and developed countries (<http://www.fairtradefederation.org>, 2008). The factors that go into environmentally friendly clothing will be discussed at length in Chapter 2, Review of Literature.

The concept of environmentally friendly clothing has presented itself as a growing and valuable trend in all areas of the fashion industry. In many publications the question has been asked, “Is green the new black?” This question symbolizes the ongoing recognition of sustainability (Blanchard, 2007; Dodd, 2007). Many top companies, including Levi Straus, Gap, and Nike, are incorporating lines that focus on eco fashion. Many apparel companies feel the need to support the “green marketing” concept to appeal to the growing eco-friendly consumers. Apparel companies are in hopes of attracting the same consumers who are loyal to existing organic grocery stores, such as Whole Foods (Jana, 2006).

The research in green clothing will help in the challenges facing the textiles and apparel industry. The challenges include: pollution of air and water associated with the

textile manufacturing process; disposing of the waste that results from textile fibers; and the threat of having a shortage of raw materials from synthetic fibers (Hye-Shin, 1995).

Sustainable efforts are being made from the textile recycling industry in reducing the amount of waste generated. The industry has been able to recycle ninety-three percent of the waste generated from production, and removed 2.5 billion pounds of textile waste annually from the solid waste stream. Americans on average discard sixty-eight pounds of clothing and textiles per year. The United States exported approximately seven billion pounds of second-hand clothing and used textile products, between 1990 and 2003. It is estimated that 85% of textile waste goes to landfills, occupying four percent of landfill space (Council for Textile Recycling, 2008).

The textile industry is also using sustainable textiles such as bamboo and hemp, in promoting eco-consciousness. These natural materials are known for their durability, faster growth rate, and are more sustainable than traditional textiles (Hoffman, 2007). In addition to bamboo and hemp, resources such as organic cotton, soy, lyocell, and ingeo are also used for environmentally friendly clothing (Smith, 2007). The key focus with green clothing is to communicate that style and sustainability can become complimentary concepts, while improving our environment.

### Need for the Study

Due to a series of events such as Hurricane Katrina, the Iraq War, rising gas prices, President Bush's challenge to the people to reduce consumption of foreign oil, as well as Al Gore's documentary *An Inconvenient Truth* in regards to climate change, society has

developed an awareness of environmental issues (Where will tree-huggers go? Looking for eco-friendly products, 2007).

The series of events, as mentioned in the previous paragraph, have produced an environmental sneeze that has exposed all levels of the fashion industry to catching a cold (Nickols & Anderson, 2001). This industry has historically been known for its lively pace and revolutionary designs, producing an environment full of glamour. Therefore, the fashion industry is often criticized for not engaging in eco-friendly practices. The focus on green clothing allows the fashion industry to find answers to the growing need of saving our environment. Even though clothing has an indirect impact on global warming, the act of consuming environmentally friendly clothing contributes to a much larger issue in preserving the environment. The importance of assessing students knowledge, attitudes, and behaviors toward green clothing is a start in addressing the environmental challenge faced in the areas of apparel, education, and the environment (Where will tree-huggers go? Looking for eco-friendly products, 2007).

Educators in the area of apparel and textiles are faced with addressing this environmental challenge in preparing students for the future. The idea of educators participating in futuring as it relates to social responsibility and sustainability becomes an important component in education. Futuring is a process that allows educators to actively identify current trends and determine how to address those trends in an educational setting. Cornish states (2007):

The goal of futuring is not to predict the future but to improve it. We want to anticipate possible or likely future conditions so that we can prepare for them. We

especially want to know about opportunities and risks that we should be ready for”

(as cited in Hodges, DeLong, Hegland, Thompson & Williams, 2007, p. 324).

As educators become more informed on environmental trends, they will be more equipped in preparing students for future endeavors. Studies reveal that students who possessed a greater awareness of environmental issues as it relates to textile and apparel perceived themselves as being able to have an impact of addressing such issues (Dickson, 2000). Therefore, there is a need to examine the knowledge, attitudes, and behaviors of college students toward environmentally friendly apparel.

#### Statement of the Problem

The purpose of this study was to determine attitudes, knowledge, and behaviors of college students toward environmentally friendly apparel. The research questions were based upon the research objectives. First, the level of knowledge possessed by college students toward environmentally friendly apparel was determined. Second, the attitude possessed by college students toward environmentally friendly apparel was assessed. Third, the behaviors of college students that impact environmental sustainability in clothing consumption were ascertained. In addition to the primary purpose, additional objectives were established. The correlation between age in relation to knowledge, attitude and behaviors was examined. The difference between student's hometown sizes in relation to knowledge, attitude and behaviors were also examined. The differences in knowledge, attitude and behaviors between majors (Fashion majors or Family Consumer Sciences) were studied.

## Research Questions

1. What level of knowledge do college students possess about environmentally friendly apparel?
2. What are the attitudes possessed by college students toward environmentally friendly apparel?
3. What eco-fashion behaviors do college students exhibit?
4. Is there a correlation between age and knowledge of college students about environmentally friendly apparel?
5. Is there a correlation between age and attitudes of college students toward environmentally friendly apparel?
6. Is there a correlation between age and environmentally friendly apparel behaviors of college students?
7. Is there a difference between the hometown size of college students and knowledge about environmentally friendly apparel?
8. Is there a difference between the hometown size of college students and attitudes toward environmentally friendly apparel?
9. Is there a difference between hometown size of college students and environmentally friendly apparel behaviors?
10. Is there a difference between major of college students and knowledge about environmentally friendly apparel?
11. Is there a difference between major of college students and attitudes toward environmentally friendly apparel?
12. Is there a difference between major of college students and environmentally friendly apparel behaviors?

### Theoretical Basis for Researching Environmentally Friendly Clothing

In addition to environmentally friendly clothing being important to the apparel industry and to the growing number of eco friendly consumers, it is also an important concept to have present in accomplishing the Family and Consumer Sciences' (FCS) Body of Knowledge. The Body of Knowledge (BOK) proposed by Nickols & Anderson (2001), is a framework of initiatives that is supported through out the curricula in FCS (Nickols & Anderson, 2001). BOK is unique in design in that it fosters change within the environment of Family and Consumer Science. This model encourages FCS educators to adapt to the environment of society and address issues that will ultimately improve the quality of life. This model was initially designed by one of the American Association of Family and Consumer Sciences (AAFCS) tasks force in continuing to promote excellence across the constructs of FCS. FCS consists of a rich history of improving the quality of life initiated in the communities. From a historical perspective FCS has fulfilled the roll of change agents in instigating new perspectives in how one views life; one that reflects the society's current environment. One of the main missions of the Body of Knowledge (BOK) is to provide a framework for FCS professionals to support the environment, as well as support the quality of life (Baugher, Anderson, Green, Nickols, Shane, Jolly, & Miles, 2000).

The BOK allows FCS professionals to view their profession from a Critical Science approach. The "critical science perspective includes knowledge focused on human interests, communicative theory grounded in dialogue, and actions based on moral consciousness" (Vincenti, Smith, Fabian, 2004, p. 63). Professionals use this approach to address challenges



by first evaluating the current environmental state. Once the environment has been assessed, then a strategic plan can be devised in creating the ideal environment. Utilizing the critical science approach is essential in cultivating the BOK. This approach fosters a higher level of thinking and reasoning when addressing issues faced in the environment. (Vincenti et al, 2004).

In reviewing the BOK model, as shown in Figure 1 (page 16), it is important to develop an understanding of the model's characteristics. At the core of the BOK model is basic needs. Basic needs relates to Maslow's Hierarchy of Needs, in that an individual must obtain a sense of self-awareness, love, sense of purpose, and belonging in one's environment to be successful. Attached to the basic needs are: Individual Well Being, Family Strengths, and Community Values. Individual Well Being refers to an individuals approach to their motivational strategies and self-assessment. Family Strengths represents a strong commitment possessed by members sharing the same network. A family defined by FCS does not necessarily mean biological, or "blood" relations. Families are viewed as social constructs that work together as a unit and share the same interests and goals. Community Values is the third circle that bonds to Basic Needs. Community Values focuses on the state of Individuals and Families. The community is a bond that forms a group functioning in society. With basic needs at the center, all three of these attachments work together creating a system in addressing environmental trends. The layer that cushions this circle is systems theory and life course development. This layer creates an environment that supports

individual well beings, family strengths, and community values. A depiction of this model can be found in Figure 1 (Nickols & Anderson, 2001).

The systems theory and life course development area have several environmental influences that have been identified by the AAFES Task Force. These influences have been identified as trends that will influence the profession of FCS. It is important for FCS to take these trends into consideration when implementing programs, or creating curricula (Nickols & Anderson, 2001). The trends are as follows:

- Aging U.S. Population – By 2030, it is projected that at least 50% of the population will be over the age of 50, in addition to a baby boom.

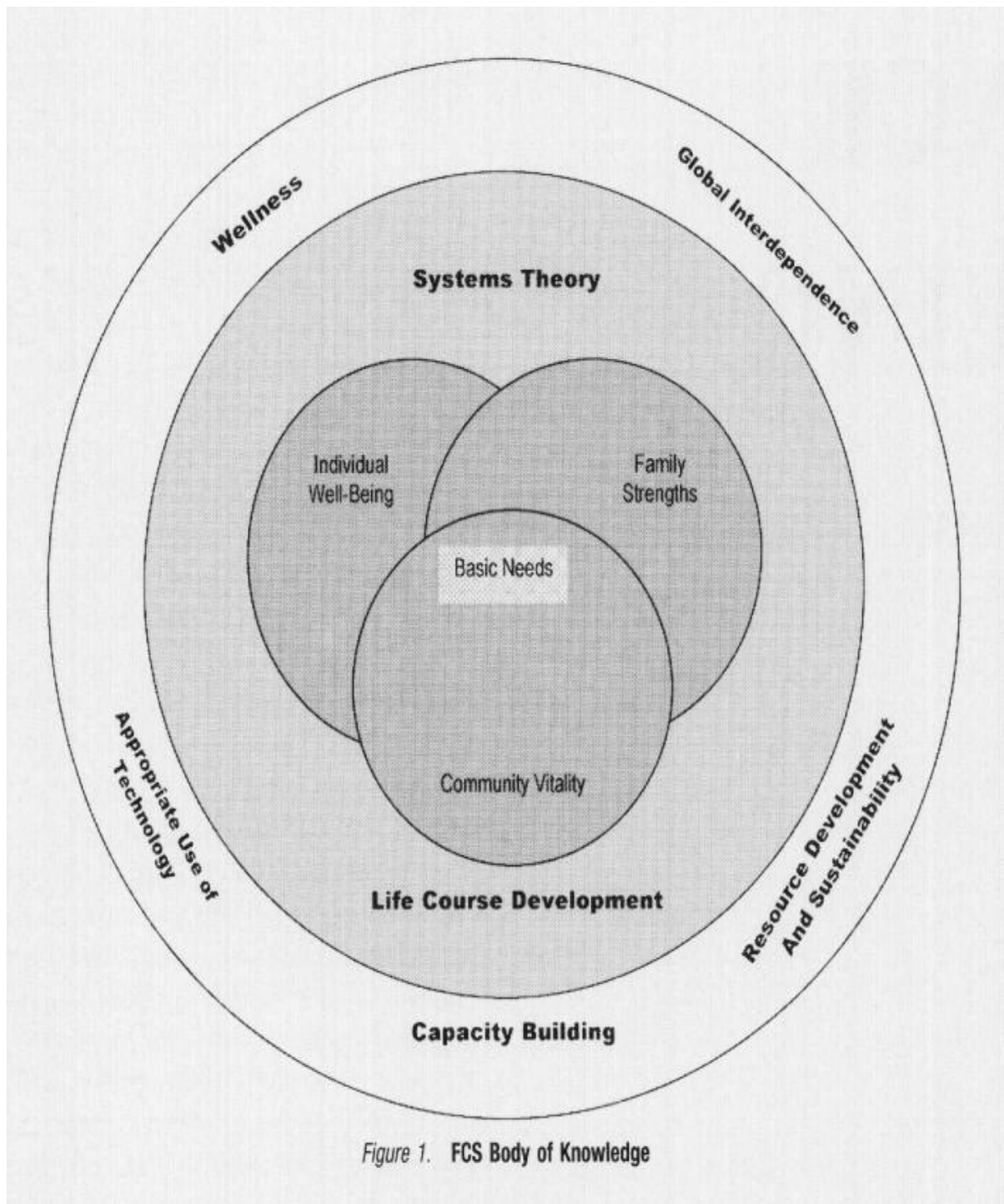


Figure 1: FCS Body of Knowledge (Anderson & Nickols, 2001).

- Dual economy – There is an increase importance in individuals receiving high school diplomas, and a growing focus on accomplishing higher education, such as college degrees. Social classes continue to widen between the wealthy and poor.
- Digital technology – growing development in the technology world that reflects new careers, industries, and ways of well being.
- Globalization – more traveling involved. One country's decision, will influence future events in another country.
- American families are changing – the society will experience more single parent families, as well as smaller families. Also, the society will see fewer marriages.
- No majority ethnic group – In the future, the society will experience more cultures, therefore there will not be any one culture that is in the majority.
- Genetically modified products – Research will produce new methods in fighting diseases. Nutritional fruits will contain ingredients that will help weight control and improve overall health behaviors.
- Protect the environment & fostering growth – this supports the need to focus on sustainable living. Develop everyday practices that will protect the environment and adopt in a daily responsibility.
- Community focus – more individuals involved in communities in creating a connection.
- Work life – An increase in the variety of work options. Where an employee will work in one part of the country, and live in another part. Also, retirees will either seek employment of volunteer opportunities.

This model supports the following as key Environmental Forces that are faced in society. Refer below to the following identified forces:

- Wellness – Includes an individual's health, psychological well being, spiritual characteristics, and overall well being.
- Globalized Interdependence – As society continues to grow, it is equally important to identify the similarities among cultures, versus the differences. Recognizing similarities will build unity from a global perspective.
- Appropriate Use of Technology – This is where individuals need to experience opportunities that will further their use of technology. Individuals need to be aware of technological trends facing society.
- Capacity Building – It is essential for the individuals to incorporate this concept into their everyday life. This concept encourages responding to change, honoring diversity, and capitalizing on others assets and strengths. This concept supports the idea of designing your everyday life in acquiring knowledge and skills.
- Resource Development and Sustainability– This concept is where one needs to protect and develop sustainable practices that help preserve the environment for future generations.

The BOK model requires all elements to be interactive to initiate change. FCS professionals may use this model to achieve educational objectives. Each layer works together in identifying current and future trends in the environment (Nickols & Anderson, 2001).

This model is designed for educators to use as a mapping guide in identifying core concepts to be implemented through programming or curricula development. Many concepts can be utilized by evaluating the identified environmental forces. One concept that is important is the idea of capacity building. Capacity building is the key in developing the quality of life. This concept influences a proactive approach in embracing diversity, and focus on other assets. When conducting programs in communities, it is vital to focus on each

community's assets, and how they can create successful environments from within. Each individual has the capacity to make a difference, and once one is open to diversity and change success can readily be achieved (Miles & Ralston, 2002).

The concept of Eco-Fashion falls in line with Family and Consumer Sciences' BOK, in the area of Resource Development and Sustainability. This challenge "involves protecting the environment, promoting, sustainable practices, creating public policy, and managing resources from generation to generation" (Nickols & Anderson, 2001, p. 5). Through teaching students about the various aspects of Eco-Fashion, students will be exposed to alternative methods in designing and merchandising clothing. Students today see a natural fit between the concepts of being eco-conscience and fashionable trends; merging style with social conscience. They view these concepts as harmonious with one another. Fashion design courses are incorporating topics such as sustainable development, ecology and ethical production in their curricula. Literature shows that students are inspired and eager to design clothing that is both beautiful and environmentally friendly (Groves, 2007).

### Definition of Terms

Buy Local – Purchasing products that are made in the local community. Decreases the transportation expense associated with all modes of transportation.

Ethical Fashion –

...a new approach of “fashion with conscience” in the market and refers to a growing number of ethical clothing companies such as American Apparel, Edun, or Gossypium that strive to attract young mainstream consumers by producing fashionable clothes. The principle is to source garments ethically while providing good working standards and conditions to workers and to provide a sustainable business model in the clothes’ country or origin. Furthermore, organic material is used to minimally impact the environment. Consequently, ethical fashion can be defined as fashionable clothes that incorporate fair trade principles with sweatshop-free labor conditions while not harming the environment or workers by using biodegradable and organic cotton (Joergens, 2006, Defining ethical fashion section).

Eco-Friendly: To not induce harm on the environment.

Environmentally Friendly Clothing, Ethical Fashion, Green Clothing, Future Fashion: are all terms that are interchangeable in describing clothing that is constructed with the environment in mind.

Organic Apparel – made from organic fibers.

...fibers that are organically grown or raised must be certified organic in-field by an approved third party certifying organization accredited by the U.S. Department of

Agriculture. Certified organic means the item has been grown according to strict uniform standards, [sic] Certification includes inspections of farm fields and processing facilities, detailed record keeping and periodic testing of soil and water to ensure that growers and handlers are adhering to standards (Speer, 2005, p. 29).

Organic Agriculture –

Organic Agriculture is an ecological production management system that promotes and enhances biodiversity, biological cycles and soil biological activity. It is based on minimal use of off-farm inputs and on management practices that restore, maintain and enhance ecological harmony (Speer, 2005, p. 29).

Sustainability – The preservation and replenishing of resources.

Social Responsibility –

*Socially responsible apparel and textile business involves-*

- An *orientation* encompassing the environment, its people, the apparel/textile products made and consumed, and the systematic impact that production, marketing, and consumption of these products and their component parts has on multiple stakeholders and the environment.
- A *philosophy* that balances ethics/morality with profitability, which is achieved through accountability-based business decisions and strategies.



- A desire for *outcomes* that positively affect, or do very little harm to, the world and its people (Dickson & Eckman, 2006, p. 188).

#### Fair Trade –

Fair trade is a system of exchange that seeks to create greater equity and partnership in the international trading system by-

- Providing fair wages in the local context,
- Supporting safe, healthy, and participatory workplaces,
- Supplying financial and technical support to build capacity,
- Ensuring environmental sustainability,
- Respecting cultural identity,
- Offering public accountability and transparency,
- Building direct and long-term relationships, and Educating consumers

(<http://www.fairtradefederation.org>, 2008, about Fair trade Section, paragraph 1).

Socially Responsible Consumption – “defined as extending beyond self-interest and the satisfaction of personal needs to incorporate decisions reflecting a concern for the environment or society.” (Dickson & Eckman, 2006, p. 188).

Environmentally Responsible – “refers to fibers, fabrics, or apparel whose manufacturing, usage, maintenance, and ultimate disposal have minimal negative impact on the environment” (Chen & Burns, 2006, p. 248).

### Limitations

One limitation in regards to this research study is the reliability of the knowledge section of the survey instrument. The Guttman Split-half of .53 is lower than desired. Possible reasons for this lower than desired reliability are discussed in Chapter 3.

Another limitation relates to the data collection. Data was collected in three different classrooms at Eastern Carolina University (ECU), Meredith College, and North Carolina Central University. Data was gathered through a survey instrument given to each student. It should be noted that class members in attendance the day of the survey participated, students who were absent might have produced different results. Also, the majority of the population surveyed was females.

### Summary

In summary, environmental issues continue to be a challenge in today's world. Sustainability has taken on new meaning in our world of hyper consumption. The need for this study is for stakeholders in the apparel industry, as well as educators in the area of apparel and textiles.

The goals of this research were to determine the knowledge and attitudes of college students toward environmentally friendly apparel. In addition, the behaviors of college students that impact environmental sustainability in clothing consumption were studied. The Family and Consumer Sciences' Body of Knowledge model provides a framework for the importance of researching environmentally friendly clothing. This model supplies the foundation for exploring the research objectives.

## Chapter 2 - Review of Literature

### Historical Perspective

Environmentally friendly clothing is not necessarily a new concept. From a historical perspective, preserving the environment has been a part of every day life activities. In many ways the concept of conserving has been deep rooted in our society for generations versus a fad among the present generation in today's society. The act of conserving takes on new shape and meaning as our society evolves over time. The progressive technological focus in textiles develops materials that sustain our environment, to include fabrics constructed from the earth and preserving the importance of nature.

Early recognition of recycling and preserving can be found in documents from Home Demonstration Clubs and 4-H Clubs in North Carolina Cooperative Extension. A report titled *4-H Contributions to the War Effort: Anson County* shows a conservative mindset attributed to World War II. The theme adopted during this time in Anson County, North Carolina was "Together We Work, Save and Serve (Green 'N' Growing: The History of Home Demonstration and 4-H Youth Development in North Carolina, 1945, paragraph 1)." The report also designated a specific area to report on "saving." The saving report states:

4-H Programs, during the period of the war, emphasized saving and conservation.

Programs and projects were conducted on the conservation of clothing, emphasizing the care of clothing, remodeling, and extending the life of garments for making over for other members of the family. Splendid reports and exhibits were made of coats

relined, garments made over, boys suits mended, garments cut down for others. 4-H girls and boys took a pride in this project and results showed better grooming as well as improved general appearance (Green 'N' Growing: The History of Home Demonstration and 4-H Youth Development in North Carolina, 1945, Saving section, paragraph 5).

The report also noted that 4-H members in Anson County, North Carolina constructed 7,252 garments and repaired and made over 12,720 garments during the years 1943 - 1945 (Green 'N' Growing: The History of Home Demonstration and 4-H Youth Development in North Carolina, 1945). Conservation efforts such as this example, were prevalent during World War II.

Additional signs of sustainable efforts toward clothing are shown through the emphasis on the importance of quality. In *Making a "Better" Dress*, literature created in 1936 for North Carolina Cooperative Extension, emphasizes the importance of quality towards garments. The article states: "There is a greater saving in making the better dress than there is in making the inexpensive garments for home use. There is economy in making both" (Hunter, 1936, p. 1).

Both practices, whether it's recycling or quality that was coined as "saving" is referred to in today's society as sustainability and social responsibility. From generation to generation, conservation efforts are prevalent. Huey Johnson, President of the Resource Renewal Institute exemplifies this concept as it relates to generations, when he states:

Sadly, I reflect that much of the conflict in human history was and is based on human competition for natural resources. On the positive side, there have been many cultural examples of human innovation, solving what had to be difficult problems at the time. Those experiences evolved over time to become our human culture (Lorensen, 2003, p. 74).

The idea of recycling was also noted in the classic novel *Gone With The Wind*, when Scarlet O'Hara yearned for a new dress upon her infamous meeting with Rhett Butler in her request for financial support to save *Tara*, the O'Hara's plantation in Georgia. In meeting her expectation of a new dress. Scarlet relied on the plantation's existing resources. She created a dress utilizing the curtains from the plantation home (Mitchell, 1936). Environmental clothing may serve as a vehicle in meeting such needs associated with consumer behavior.

### Sustainability and Social Responsibility

The mindset of conservation over several generations has evolved into ideas related to social responsibility and sustainability in the apparel industry. Sustainability continues to be a growing awareness in Family and Consumer Sciences (FCS) that needs to be addressed. Several pieces of literature have been developed in support of deepening our understanding of sustainability. Shirley Baugher (2000) in her editorial in the *Journal of Family and Consumer Sciences* state that "sustainability is about replacing and renewing the resources that serve us for our children and grandchildren and the imperative for research, policy, and education is identified. Our environment(s) are indeed to be cared for....as a child or

parent...nurtured in living” (p. 107). She supports the concept of viewing the environment as a family. In line with the family perspective, Baugher suggests to treat the earth as an individual would a family member. An individual should nurture and respect the earth as one would a significant other (Baugher, 2000).

An additional viewpoint on sustainability is from Lorensen (2003), where she defines sustainability as being “about finding a balance—a give and take between resource use and replenishing while considering the environment, the economy, and a wide variety of social factors” (p. 74). Through her discussion on sustainability, she brings up an interesting viewpoint. Due to sustainability being such a large issue, it is often challenging to conceptualize, therefore it is often not addressed due to the overwhelming characteristics this topic presents to the current state of our environment. She challenges the reader to take into account historical actions, and develop a strategy based on how our society can succeed in sustainable practices based on learning from where others have not been as effective (Lorensen, 2003).

Anderson (2003) suggests that “sustainability relates to meeting today’s needs and keeping an eye focused toward the future” (p. iii). Anderson makes the point that both the human and natural environments need to work together in building a united front in fulfilling a unified, healthy environment. The choice an individual makes today has a lasting affect on the environment including individuals, families, and communities collectively (Anderson, 2003).

Makela (2003) challenges the reader to view sustainability as a concept. Concept is defined as an idea introduced by an intellectual community often filled with a wide array of viewpoints and explanations. Often times the concept is adopted by the media and in turn is included into the daily vocabulary and discussions. Makela suggests that sustainability falls into this category of concepts. She promotes the idea that actions do help promote preservation of resources, however it takes more than single behaviors to address the environmental issues. In the article, she states “Practicing these behaviors does contribute to the intent of sustainability, but they are only pieces in the much larger and more complex system that must be comprehended and addressed from a holistic perspective” (Makela, 2003, p. 5). Makela further suggests that in addition to behaviors, sustainability needs to incorporate a systems approach. An approach, focusing on the idea of how individual behaviors is contributing to the much larger picture of environment issues (Makela, 2003).

The discussions of sustainability among scholars in FCS all contain common threads to include the preservation and replenishing of resources. The literature addressing sustainability supports this idea as a broad concept that requires a holistic approach when planning for the future (Anderson, 2003; Baugher, 2000; Lorensen, 2003; Makela, 2003).

Family and Consumer Sciences also emphasize the importance of social responsibility as it relates to the apparel industry. Much like the concept of sustainability, social responsibility holds the same vastness in the apparel industry. In 2006, the *Clothing and Textiles Research Journal* focused one of their issues on social responsibility. In this special issue, there was an article that specifically focused on defining social responsibility as

it related to teaching and scholarly activities in the apparel and textile industry. Dickson and Eckman (2006) were charged with asking educators the question “What are the critical linkages among apparel and textile scholars when it comes to the concept of social responsibility?” (p. 179). Dickson and Eckman (2006) conducted extensive background research on the concept of social responsibility. They evaluated several definitions and philosophies over the past fifty years exemplifying how this concept has evolved. Dickson and Eckman (2006) observed that the term social responsibility has taken different forms over the years from its early inception of vagueness to presently a more focused definition, while keeping the similar core concepts. The challenge was based upon the need among educators to develop a definition for social responsibility that was inclusive and applicable in design. A survey was given to active members of the International Textiles and Apparel Association (ITAA). Based upon the survey findings, a definition was formed incorporating three major themes to include orientation; business philosophy/goals/values/activities; and outcomes. The definition states:

*Socially responsible apparel and textile business involves –*

- An *orientation* encompassing the environment, its people, the apparel/textile products made and consumed, and the systematic impact that production, marketing, and consumption of these products and their component parts has on multiple stakeholders and the environment.
- A *philosophy* that balances ethics/morality with profitability, which is achieved through accountability-based business decisions and strategies.



- A desire for *outcomes* that positively affect, or do very little harm to, the world and its people (Dickson & Eckman, 2006, p. 188).

A number of studies have found that social responsibility is contingent upon behaviors of the government and the corporate environment. However, consumers do feel that it is their responsibility to take a stance in advocating ethical practices to the corporate world as well as the government (Joergens, 2006). It has been found that businesses exhibiting social responsibility appeal to female apparel consumers (Dickson, 2000). Consumers are more apt to purchase from companies that are socially responsible, however the purchase will not take place unless the product offers a competitive price and is of quality (Littrell & Dickson, 1999).

Sustainability and Social Responsibility are terms that have received a recognition in the apparel industry. Exploring each concept will continue to strengthen our knowledge base as it relates to addressing environmental issues.

### Apparel Industry

The concept of environmentally friendly clothing is progressively moving into the fashion industry. Director of Program Development for the nonprofit group Organic Exchange, Rebecca Calahan-Klein captures this movement when she states, “The big joke in the organic advocacy world is that one day we’ll have a shirt we can eat” (Jana, 2006, p.14). This statement might sound extreme, but the idea of sustainability is a growing practice among consumers. The apparel industry is closely following in the same path as the food industry once traveled, but for good reasons. The textile industry is a major contributor to

the industries in the United States, generating approximately \$180 billion from annual retail sales in clothing and accessories. The organic food industry achieved an overwhelming success in 2005, bringing in \$5 billion in total revenues. As a result apparel manufacturers are following suit, hoping to become a part of the success of incorporating the use of organic in their apparel options (Jana, 2006). Due to the current success of the organic industry as well as the dominance the apparel industry possesses in the US, the apparel industry is in a position to make an impact on the environment.

All areas of the fashion industry including suppliers/manufacturers, designers, retailers, and consumers are starting to focus on environmental friendly clothing, from both a marketing and environmentally savvy position. The natural materials in Eco-Fashion may include: banana fiber, soy-based fibers, corn – fiber knit, wood pulp, seaweed, and fleece made from recycled plastic bottles (Gershon, 2005). Some of the most popular used materials include organic cotton, hemp, and bamboo (Apparel Firms Join Green Brigade, 2007).

From a global standpoint, cotton is the most widely used fiber (Chen & Burns, 2006). Cotton is a great natural environmentally friendly fiber that contains all the qualities of being sustainable, renewable, and biodegradable (U.S. Cotton & the Environment, 2007). The consumer demand for cotton falls between \$800 million and \$1 billion. This fiber has proven to be the most-preferred textile among consumers globally (Environmental Justice Foundation, 2007). Due to the continuing increase in the production of cotton, organic methods of producing are alternatives in preserving the environment. New technologies have

allowed the production of cotton to become more resistant to elements of insects and droughts. Farmers today are showing an increase in knowledgeable toward sustainable practices. Farmers have found that practices such as conservation tillage allows less plowing and soil disturbance, resulting in less erosion and run-offs for the land (Cotton Incorporated Press Release, 2007). The production of cotton also faces the challenge of decreasing the use of pesticides. Agricultural workers in developing countries are the most vulnerable to the effects of pesticide poisoning due to the lack of education on the harmful side effects.

Acute symptoms of pesticide poisoning include headaches, vomiting, tremors, lack of coordination, difficulty breathing or respiratory depression, loss of consciousness, seizures and death. Chronic effects of long-term pesticide exposure include impaired memory and concentration, disorientation, severe depression and confusion (Cotton Incorporated Press Release, 2007, p. 2).

With the increasing use of technology, farmers are encouraged to decrease the amount of chemicals used in the production process. In addition to a reduction of chemicals, cotton requires less water than most major crops (U.S. Cotton & the Environment, 2007).

In producing organic cotton, there are strict standards enforced by the USDA-certifying agents in compliance with the National Organic Program (NOP). In order to be certified as an organic cotton operation, a farm must undergo a three-year conversion process for the land before they can produce their first harvest, thus becoming an expensive and timely commitment (U.S. Cotton & the Environment, 2007). However, once the extra costs

are met, organic cotton has the potential to be more efficient and less expensive to produce (Speer, 2005).

Organic cotton does not use chemical pesticides, insecticides, fungicides or defoliants. Organic farming promotes crop rotation and natural fertilizers to include cow manure and compost. This type of farming utilizes insects and trap crops as protective agents for cotton. Insects such as ladybugs and lacewings consume the boll weevils, which are known to damage cotton crops. Trap crops consist of plants that attract the insects such as the boll weevil from harming near by crops. The country of Turkey is the largest producer of organic cotton, followed closely by the U.S. and India/Pakistan. Organic farming has provided developing countries, such as India and Turkey, a means to improve their quality of living. When supported properly, organic farming has increased employment opportunities for developing countries. Organic farming appears to be a natural fit in developing countries due to their existing limited use of pesticides. Through the efforts of promoting healthy practices toward the production of cotton, a healthy environment can be shared globally (Speer, 2005).

Cotton Incorporated suggests that there is little difference in the production of fiber between cotton that is organically grown versus the modern production methods (Term Limits: Green is Apparel's Gray Area, 2007). In looking at the current availability of products, conventional cotton still accounts for the majority of use where as organic cotton only accounts for 2% of the total U.S. production (Chen & Burns, 2006).

Women's Wear Daily (2008) reported the International Textile Fair in January 2008 was showing a growing acceptance toward organic materials. The buyers at the fair viewed the rising cost as insignificant toward organic materials. They are starting to feel it's worth the extra expense (Tucker, 2008).

Wool is another fiber that is known for its natural environmental friendly qualities. This fiber is the most widely used animal fiber in textiles. Like cotton, the production of wool is faced with enforcing environment friendly practices. Organic farmers practice methods such as monitoring the grazing patterns of sheep to prevent soil erosion and controlling waste run off (Chen & Burns, 2006).

Due to the numerous options of environmentally friendly fabrics, consumers as well as the apparel companies are feeling the need to become educated on the terms that are associated with the apparel contents. Fabric manufactures are starting to become faced with numerous questions generated from consumers and famous label apparel companies. Fabric manufacturers feel that the demand for eco fashion will continue to increase in demand largely due to the progression of successes in organic cotton. Organic cotton reached \$1 billion in sales in 2006 and is projected to increase to \$2.6 billion in 2008 (Tucker, 2008). This increased growth reflects consumer demand for environmental labeling. Environmental labeling, also referred to as eco-labeling, is a method of communication that is on the package indicating the produce is earth friendly. Due to the vague terms, and claims that were unreliable, the government felt the need to develop guidelines in helping consumers filter advertising toward environmental products (Engelhardt, 2002). The Federal Trade

Commission (FTC) in collaboration with the Environmental Protection Agency (EPA), developed six guiding principles for the consumer:

1. **Claims Should Be Valid-** The product should state what materials have been recycled in the product, to include post-consumer or pre-consumer materials. Post-consumer materials refer to recycling the waste from the consumer. Pre-consumer waste refers to waste generated from the manufacturer process before it reaches the consumer. A label must state whether a product is recycled, remanufactured, or reconditioned.
2. **Content of the Claims – Environmentally friendly claims must possess validity.** To avoid vague terms such as “environmentally friendly,” “environmentally safe,” “environmentally preferable,” or “eco-safe.” The product must provide an explanation on its environmental relevance.
3. **Recyclable vs. Recycled -** Recyclable pertains to the manufacture notifying the consumer that the product can be recycled. The phrase, “please recycle” signifies that the company promotes pro-environmental behavior.
4. **Conserving Landfills is not Increased by Degradable Products – “Biodegradable”** materials decompose from air, bacteria, moisture and other organisms into natural elements. Whether organic or non organic, items decompose slowly in landfills, due to the lack of sunlight, air, and moisture to the area.
5. **The Ozone Layer –** When consumers see phrases such as “ozone friendly” and “ozone safe”, it is led to believe that companies are producing a product that is

friendly to the environment. The composition of the product will not compromise the earth's ozone layer, as well as the ground air quality on earth.

6. Symbols for Recycled & Recyclable – Symbols are displayed for the consumer to determine if the product in its current state or the product's package is made from recycled goods or if it's recyclable. The chasing arrow symbol in clock-wise direction indicated that the product and/or package are capable of being recycled as well as recyclable. The Society of the Plastic Industry (SPI) created a symbol that identifies the types of plastics. The code is ranged from numbers one through seven. However, there is no universal system, for the collection procedure (Federal Trade Commission Protecting America's Consumers, 2008).

Mohr, Webb, & Harris (2001), found that companies should build consumer trust toward corporate social responsibility. Companies need to promote corporate social responsibility through communication programs and environmental labeling. By enhancing these programs it is believed that consumers will learn of the company's ethical motives. Any change in product delivery such as increased prices or lowering quality has not been compromised in delivering social responsibility (Mohr, Webb, & Harris, 2001).

Successful apparel companies are starting to invest in environmentally friendly apparel, showing their commitment to the cause. *Patagonia* of Ventura, California introduced the first recycled textile in 1993 consisting of recycled plastic bottles (Apparel Firms Join Green Brigade, 2007). In 2005, Patagonia launched their *Common Threads*

*Garment Recycling Program.* This program promotes the idea of consumers sending in their unwanted Patagonia garments to be recycled into new garments. Patagonia is committed to “take environmental responsibility for everything we make” (Common Threads Garment Recycling, 2007). In addition to Patagonia, other companies such as ... “Eileen Fisher, L.L. Bean, Liz Claiborne’s Prana (outdoor), Levi Straus (denim), Stewart + Brown, Undersigned/Carol Young, Hayley Starr and The Battalion contemporary, and Sector 9, Volcom, Quiksilver’s Roxy and Vans (action sports)” ... are incorporating environmental friendly apparel lines in their product offerings (Apparel Firms Join Green Brigade, 2007). Regardless of the industries product, the contagious mindset is what links these companies together. The motivational factor for these stakeholders is a moral responsibility in preserving the environment (Daswani, 2007).

Designers such as Nina Valenti of New York, and Linda Loudermilk have been very successful in their environmentally friendly designs. At least half of Valenti’s apparel collection incorporates eco friendly qualities. One will often find in her collection wide leg pants made from bamboo, tanks tops made from wood pulp, and shirts from corn (Mendez, 2006).

Loudermilk markets her brand of “Luxury Eco” to include the use of fabrics created from banana fiber, soy, bamboo, and sasawashi. Sasawashi is linen like fabric made from a Japanese leaf consisting of anti-bacteria agents. Loudermilk always incorporates a theme for her collection each season. For one of her collections, she incorporated an “Oceanic” theme



(West, 2007). Designers such as Valenti and Loudermilk are concerned with putting the “fashion” back into Eco-Fashion (Mendez, 2006).

For many years the consumer was not willing to sacrifice style to save the planet. However, new technology has created softer, more sought after fabrics that are inspiring designers. Textiles such as gossamer silk blended with hemp, and taffeta made from corn are among the many product offerings (Childress & Brownell, 2005). Today’s designers also feel the need to be stewards of their profession, and eco-fashion is a vehicle for fulfilling such drives. Rogan Gregory is one designer that is creating the path through his eco friendly designs. Gregory has developed a positive reputation for his environmental savvy designs through his Loomstate fashion line; and his work with Edun Apparel, which was founded by Ali Hewson who is the wife of the U2 rock star Bono (Gregory, 2007). In 2007, Gregory was the winner of the prestigious CFDA/Vogue Fashion Fund Award. This award supports young American designers monetarily in their endeavors. It also sponsors a mentor opportunity from an executive in the fashion industry for a year (Barnett, 2007). Creating quality designs for his consumers motivates Gregory, and incorporating organic materials is an extra benefit. His philosophy is why not choose organic when designing (Gregory, 2007). Through designers focusing on eco friendly designs, tomorrow’s designers will be influenced in adopting eco consciousness into their everyday philosophy. The designers and companies that are supporting the green movement feel that it is worth the extra expense and is an expense that the consumer is willing to support in saving the environment (Apparel Firms Join Green Brigade, 2007.)

### Fair Trade

The International Fair Trade Association (IFAT) (2008) states:

Fair Trade is more than just trading: it proves that greater justice in world trade is possible. It highlights the need for change in the rules and practice of conventional trade and shows how a successful business can also put people first (<http://www.ifat.org>, 2007, What is fair trade section, paragraph 3).

Fair Trade prioritizes collaborations with small producers in developing countries to ensure ethical practices. This initiative aims to work with producers and workers that are susceptible to their current environment in positioning them to a level of economic independency and sustainability. Fair trade equips producers and workers in developing countries with the knowledge and information needed in becoming successful in their involvement toward international trade. IFAT identified ten guiding principles that Fair Trade organizations must uphold in their daily operations. These principles include: “Creating opportunities for economically disadvantaged producers; Transparency and accountability; Capacity Building; Promoting Fair Trade; Payment of a fair price; Gender Equality; Working Conditions; Child Labour; The Environment; Trade Relations” (<http://www.ifat.org/>, 2008, The 10 Standards of Fair Trade section, paragraph 2). Fair Trade creates a platform for artisan producers in developing healthy partnerships at all levels to include the producers, retailers, and consumers. Littrell & Dickson (1999) highlight three basic premises that fair trade members operate under:

Premise 1: Indigenous products can be commercialized through a process of product development that emanates from and honors cultural traditions among artisan producers.

Premise 2: Production and trade can transpire under socially responsible, non-exploitive conditions that provide a fair wage, maximize profits, and contribute to long-term, socioeconomic benefits for producers and their communities.

Premise 3: A customer base exists for culturally embedded goods produced in a socially responsible manner (Littrell & Dickson, 1999, p. 6).

The three premises create a framework for all stakeholders involved with trade at all levels. Today's concerns are directed toward environmental influences that have a direct impact on the quality of life in developing countries. One concern is toward the use of technology, production methods continue to increase efficiency and the quantity of products. As these production methods increase, producers in developing countries are experiencing a decrease in opportunities for their products. They are challenged with the ability to maintain the pace that is offered through higher production methods, resulting in a loss of employment and cultural identity. Another concern relates to human rights issues. Often times the production methods are under exploitive working conditions to include low wages, child labor, and hazardous working environments (Littrell & Dickson, 1999). Fair Trade provides a system in ensuring that all producers have an equal opportunity to improve the quality of life. In order for the apparel industry to uphold standards that support social responsibility, Fair Trade must be the driving force in making responsible decisions.

### Environmental Challenges

In addition to eco-friendly fabrics, hangtags are constructed with recycled paper, reusable boxes are used for shipping, and light bulbs are replaced with energy efficient versions. As one can see, the green movement goes well beyond the use of environmentally savvy fabrics (Apparel Firms Join Green Brigade, 2007).

Through the combined efforts of Al Gore's stance toward global warming, Whole Foods continued success, and retail giants such as Wal-Mart's move toward organic products, the idea that the green movement is more than just a perceived trend is supported (Apparel Firms Join Green Brigade, 2007). The green movement is becoming a habit; a way of life; versus a fad. Therefore the demand for environmental clothing continues to increase. As a result, companies as well as independent designers are becoming more interested in altering their clothing designs to meet the environmentally conscious consumer (Sarkisian-Miller, 2005).

Nobel Peace Prize winner, Al Gore addresses global warming in his book *An Inconvenient Truth*. Gore is committed to educating others on the climate crises. Due to our technological advancements, today's society can have a profound influence on the earth's environment. Global Warming occurs when:

The sun's energy enters the atmosphere in the form of light waves and heats up the Earth. Some of that energy warms the Earth and then is re-radiated back into space in

the form of infrared waves. Under normal conditions, a portion of the outgoing infrared radiation is naturally trapped by the atmosphere – and that is a good thing, because it keeps the temperature on Earth within comfortable bounds (p. 26).

The trapped infrared radiation is the reason why Earth possesses civilization. Other planet such as Venus and Mars produce extreme temperatures where it is impossible for humans to survive. Venus is known for being extremely hot due to the thick greenhouse gases that surround the planet. Mars is known for possessing a severely colder climate, due to the lack of greenhouse gases. Gore explains our climate crises the best when he states:

... this thin layer of atmosphere is being thickened by huge quantities of human-caused carbon dioxide and other greenhouse gases. And as it thickens, it traps a lot of the infrared radiation that would otherwise escape the atmosphere and continue out to the universe. As a result, the temperature of the Earth's atmosphere – and oceans – is getting dangerously warmer (p. 27).

Carbon dioxide is the leading topic when discussing greenhouse gases and climate change. In addition to carbon dioxide, there are also other types of gases that are involved in this crises. A common thread among all greenhouse gases it that they permit the sun's rays to enter the atmosphere, warming up the air with a contained portion of the outward-bound infrared radiation. In moderation greenhouse gases are good for the environment allowing our temperature to average 59 degrees Fahrenheit, compared to zero degrees Fahrenheit without the gases. However, due to civilization creating more greenhouse gases, the planet's

temperature is being raised to place the climate in a dangerous zone. Since 1860, the hottest year recorded was in 2005. Additionally in looking at this time frame, the highest temperatures recorded occurred within the last twenty-five years. This observation shows a substantial effect global warming has had on our environment (Gore, 2006).

Al Gore challenges today's environment when he states:

We must choose instead to make the 21<sup>st</sup> century a time of renewal. By seizing the opportunity that is bound up in this crisis, we can unleash the creativity, innovation, and inspiration that are just as much a part of our human birthright as our vulnerability to greed and pettiness. The choice is ours. The responsibility is ours.

The future is ours (Gore, 2006, p. 296).

The vast issues associated with global warming can be overwhelming to an individual. By becoming aware of such issues, and adopting environmentally friendly behaviors, an individual can make a difference to climate change. Clothing plays an important role in one's daily lifestyle choices. Positive change starts with the individual. As a consumer, choosing environmentally friendly apparel is one behavior an individual can contribute toward improving the global environment (Gore, 2006).

#### Environmentally Friendly Behaviors

The environmentally friendly initiative goes much further than producing clothing made out of natural fibers. Even though the utilization of natural fibers is a great start, other factors need to be considered in reviewing the larger picture of the apparel industry, such as the consumer in adopting environmentally friendly behaviors (Chen & Burns, 2006).

Developing environmentally friendly behaviors is one alternative in preserving the environment. Environmental behaviors in clothing should include the following: the consideration of quality when purchasing, donating unwanted clothing, and reconstructing previously owned clothing into new designs (Blanchard, 2007). When the consumer considers purchasing quality clothing, they are making an investment that they are likely to keep over an extended amount of time. An individual can make an impact by simply choosing items that will last longer over less durable items, and to maintain the mindset of repairing versus discarding (Gore, 2006). Another aspect in support of quality consumption is that the life cycle of the article of clothing will last longer (Blanchard, 2007).

Fast fashion is growing in popularity in today's apparel industry. Fast Fashion is known for having "the right product in the right place at the right time" (Hayes & Jones, 2006, p. 283). This type of fashion is instigated by the consumer market in their demands for acquiring designs immediately from the fashion runway. Therefore replication occurs with less lead-time, which refers to the time between customer order and delivery (Hayes & Jones, 2006). However, apparel that is considered fast fashion is produced at a lesser quality therefore providing a short life cycle for the consumer. As a result fast fashion could possibly be filling up the landfills at an alarmingly fast rate. The production of excessive clothing reduces our supply of natural resources, contributing to an increase use of landfills (Young, Jirousek, & Ashdown, 2004). One initiative that will help address the excessive production of clothing is to reconstruct clothing into new designs. In the reconstruction process it is helpful to utilize existing garment features, such as closures and pockets (Young

et al., 2004). Jackets can be transformed into skirts, and dresses can take form into new tops (Blanchard, 2007).

The act of buying local, purchasing from your local community is another conservation effort. Exploring opportunities in purchasing from the community of an individual's home environment, not only supports the success of the community, it also reduces harmful pollutions from transportation (Blanchard, 2007 & Gore, 2006). A key concept to keep in mind is that green clothing is not based on materials alone, it incorporates all the factors that are involved in the production of the garment. For example, when a t-shirt is made out of organic cotton from China is not necessarily a product that is safe for the environment due to the transportation cost that occurred in delivering the shirt to the consumer (Romm, 2007).

An additional aspect of eco friendly clothing is the donation process. Once clothing items are donated to charities, they are sorted through and unwanted items are sold to rag sorters. The price usually ranges from three to six cents per pound, however the value is ultimately based on the current market value. The textile recycling companies are usually found in large metropolitan areas. The convenient location keeps production cost to a minimum. When the clothing items arrive at the textile recycling company they initially sort out and remove coats. At this point the items are sorted in the following categories: trousers, blouses, and dresses. The proceeding steps continue to become more detailed at each level. In looking at the assortment of trousers, the following criteria are used: identifying men's or women's wear, fabric, condition, and quality. Fabric plays a factor in that heavier fabrics



such as wool are transported to cooler climates, and lighter fabrics to include cotton and linen are transported to hotter climates. The condition is determined by the number of tears, missing notions, and discoloration of the garment (Hawley, 2006).

In a study conducted by Steinbring, and Rucker (2003), cleanliness was found to be the number one priority when shopping for clothing at a second hand store (Steinbring & Rucker, 2003). Another category that is important in the sorting process is quality, which is based on designer brand names. Brands such as Tommy Hilfiger and Levi's are considered diamonds. Diamonds is the classification for items that bring in a higher market value per pound. Diamonds are used for the vintage and collectable markets, where as the rest of the clothing items are sorted into categories that may include exporting to developing countries. Textile Recycling companies play a huge role in conserving the environment in that they convert 75% of pre-consumer waste from entering the landfills (Hawley, 2006).

### Initiatives

Due to fashion industries increased awareness of going green, numerous initiatives have emerged in addressing this environmental stance. In 2005, the Fashion Week held annually in New York featured a runway show exclusively for designers creating green clothing. The fashion show was a success featuring 33 designers. Barneys Department Store and Earth Pledge, an environmental driven non-profit association, sponsored the show. The show created such a success that Barney's carried the green fashion into the window displays for several weeks after the show. After Fashion Week, many of the leading supporters in the fashion industry including: Barneys Department Store, Earth Pledge, FIT (Fashion Institute

of Technology), and Diesel Jeans (profitable jean manufacturer) engaged in a round table discussion. Each of these stakeholders wanted to learn more about the impacts of environmental clothing on the fashion industry (West, 2006).

Since the first introduction of the environmental focus in 2005, Eco-Fashion continued its momentum in New York's 2008 Fashion Week. One of the biggest trends identified from the week is the fact that major brands, retailers, and celebrities are going green. Barneys Department Store is largely responsible for this momentum. They are continuing their leadership through challenging top designers to utilize all recyclable materials (Moses, 2008). EarthPledge's Future Fashion show was centered on the challenge of vice president of fashion merchandising at Barneys New York, Julie Gilhart. She posed the question "If you were to make something sustainable, what would it look like?" (Edelson, 2008, p. 10) to well known international designers to include... "Ralph Lauren, Calvin Klein, Donna Karen, Marc Jacobs, Narciso Rodriguez, Derek Lam, Michael Kors and Threasefour. European houses such as Versace, Bottega Veneta, Burberry, Givency, Marni, Martin Margiela, Stella McCartney and Yves Saint Laurent also participated" (p. 10). Barneys is planning to utilize the looks for their store display solely for the purpose of inspiring their customers (Edelson, 2008).

In light of the present environmental focus and the exposure from the fashion industry, the ethical clothing movement is on the rise. Many designers have adopted environmentally friendly initiatives into their designs (Moses, 2008). "Combining high principles with high fashion" (p. 6) seems to be the motivational factor among designers, and

consumers alike (Blanchard 2007). This principle is supported by designers such as Rogan Gregory. Gregory further supports this philosophy in an interview, when he states “If the design is good quality design, why wouldn’t you pick something that’s organic?” (Gregory, 2007, p. 4). However, the success of eco-fashion relies primarily on the aesthetic appeal the garment brings to the consumer (Childress & Brownell, 2005; Edelson, 2007; Joergens, 2006). Blanchard (2007) makes references to the secrets of incorporating vintage into one’s wardrobe. The secret is to find clothing in second hand shops that reflect the current trends. In reflecting upon the current trends, clothing is more apt not to portray the recycled look (Blanchard, 2007).

#### Research on Knowledge, Attitudes, and Behaviors Towards Environmentally Friendly Apparel

Studies have been conducted to measure knowledge, attitudes, and behavior as it relates to sustainability and social responsibility toward the environment. In addressing environment issues, it was found that educating consumers is among the most important factors. Educating consumers about environmental issues will provide them with reasoning, thus increasing the promotion of environmental behaviors (Birtwistle & Moore; 2007; Dickson, 2000; Domina & Koch, 1997; Domina & Koch, 2002; Hawley, 2006; Joergens, 2006; Kim & Damhourst, 1998; Koch & Domina, 1999; Shim, 1995; Young, Jirousek & Ashdown, 2004). Studies have shown that consumers possess a limited amount of knowledge in factors that are associated toward environmentally friendly apparel, and they

need a greater knowledge to become more eco conscious (Dickson, 2000; Joergens, 2006). Research suggests it is the industries responsibility to educate consumers on their eco friendly practices, and show the importance of such practices. The industry's informative efforts strive to encourage consumers to become loyal to their ethical practices (Dickson, 2000; Kim & Damhourst, 1998). Research indicates that apparel manufactures will benefit from promoting their use of organic fiber to the consumer (Hustvedt, 2006).

A study conducted by Koch and Domina (1997), reveals that college students develop an awareness of environmental issues from their exposure through campus events and coursework. This consumer segment of college students fulfills the role of fashion opinion leaders. Therefore, fashion opinion leaders play an important role in educating other consumer segments in their knowledge towards environmentally friendly apparel (Koch & Domina, 1997).

Research indicates that consumers will purchase and are willing to purchase ethical fashion if the garment is fashionable and is at a competitive price point (Joergens, 2006). Organic cotton is highly sought after among consumers (Hustvedt, 2006). It was also found that females held an overall higher environmental attitude than males (Koch & Domina, 1997; Shim, 1995). An additional thought among consumers in discussing attitudes toward environmentally friendly products, is that consumers may perceive purchasing from eco friendly sources will limit their product offerings. Consumers are concerned with not having many viable options if they only choose environmentally friendly products (Dickson, 2000).

In contrast, research shows that knowledge does not necessarily effect consumer's decision to purchase. This reasoning is due to their view that many garments are already manufactured in developing countries, therefore the manufacturing process is too large for an individual to make an impact. Also, consumers feel that even though they know where the garment is constructed, it does not necessarily imply unethical production procedures. However, issues related to animal abuse have a greater impact on purchasing decisions versus production issues. In general, research reveals that consumers are only concerned with ethical issues that have a direct impact on the consumer, such as fair trade and organic foods (Joergens, 2006).

Research has suggested that age plays a factor in influencing attitudes toward apparel consumption. Young consumers are highly influenced by their peers, and must feel the acceptance from their peers in their clothing purchases (Joergens, 2006). College age consumers have various motivational factors that contribute to their purchasing decision, to include self-expression and aesthetic attributes (Kim & Damhorst, 1998). Therefore if eco friendly apparel is not accepted among peer groups, then young consumers are least likely to make a green purchase (Joergens, 2006).

In a study conducted by Koch & Domina (2002), the act of donating textiles was not perceived as a recycling method. This attitude was attributed to consumers not relating textiles to waste products. They view the garment as not necessarily losing its value upon discarding (Domina & Koch, 2002).

Females were also more apt to discard clothing in an environmentally friendly manner versus males (Koch & Domina, 1997; Shim, 1995). In educating both genders it is good to deliver recyclable information in a manner that appeals to both genders and encourages a variety of recycling options (Koch & Domina, 1997). In regards to age, it is suggested that perhaps the younger consumers have a higher awareness toward donating clothing, as well as the least likely to discard clothing (Koch & Domina, 1997; Shim, 1995). In a survey published in *Textile Intelligence*, consumers considered time and cost when purchasing environmentally friendly products. This study found that generally consumers will not necessarily go over and beyond in becoming eco-conscious. The majority of the respondent indicated that they are open to the idea of becoming green in the future (Walzer, 2007). Research has found that consumers place their individual fashion needs over other needs of stakeholders in the apparel supply chain. Consumers are influenced by brand image, latest fashion trend, and price point (Joergens, 2006). Thus, consumers are mostly concerned with aesthetic attributes in purchasing apparel (Dickson, 2000; Joergens, 2006; Kim & Damhorst, 1998). The consumer's future purchase is related to the benefits they will have from the purchase (Hustvedt, 2006). Therefore, the industry must supply an eco friendly product that meets the needs of the consumer (Dickson, 2000).

Donating is another option in contributing to the green movement. In a study conducted by Koch & Domina (1999), they found that consumers were willing to donate their unwanted clothing to charities such as Goodwill and Salvation Army (Hawley, 2006; Koch & Domina, 1999). Consumers also possessed conservation behaviors in clothing by

sharing their unwanted items with friends and family, as well as turning unwanted clothing items into rags. These behaviors were mostly used due to their nature of convenience (Domina & Koch, 2002; Koch & Domina, 1997; Koch & Domina, 1999). Environmentally friendly behaviors that require the least amount of planning and preparation are the behaviors that are mostly used among consumers (Koch & Domina, 1999; Domina & Koch, 2002). Also, research suggests that the consumer's interest plays a role in textile recycling. Consumers that were more concerned with environmental issues donate and reuse textiles, versus low opinion leaders who sell their unwanted textiles (Koch & Domina, 1997). Households that are active in their recycling efforts, did not perceive textile recycling as a hassle. However, households who recycle perhaps are more willing to adapt to new recycling behaviors as it relates to textiles.

### Summary

Environmentally friendly apparel is growing in consumer awareness and popularity. Eco-fashion contributes toward the mindset of honoring all factors that incorporate the environment. Ethical standards are upheld in the focus of preserving humans, communities, and the planet Earth. In learning more about the evolution of recycling, sustainability, and social responsibility one may gain a better understanding on addressing environmental issues addressing the apparel industry. Developing a deeper understating of environmental behaviors, initiatives, and consumer behavior towards the environment allows the apparel industry to build awareness among such concerns. Eco Fashion is one step in insuring our future.

### **Chapter 3 - Methodology**

The purpose of this study was to determine attitudes, knowledge, and behaviors of college students toward environmentally friendly apparel. In addition to the primary purpose, additional objectives were established. The correlation between age in relation to knowledge, attitude and behaviors was examined. The difference between student's hometown size in regards to knowledge, attitude and behaviors were also examined. The differences in knowledge, attitude and behaviors between majors (Fashion Majors or Family Consumer Sciences) were studied.

This chapter describes (a) the research design, (b) creation of the survey instrument, (c) the process of determining the population and sample, (d) the data collection procedures, (e) the instrument reliability, (f) variables, and (g) the analysis of data.

#### **Research Design**

Survey research was conducted in determining attitudes, knowledge, and behaviors of college students toward environmentally friendly apparel. Survey research is used when researchers are interested in gathering insight on opinions possessed within a large group in regards to a particular topic. There are three primary characteristics that surveys possess. The first characteristic is that information is gathered from a group in a larger population. The main goal of the information collected is to describe some aspects or characteristics, to include opinions, attitudes, knowledge, abilities, and beliefs. This study collected information that describes attitudes, knowledge and behaviors of college students. The second characteristic of survey research is that information is gathered from asking the group



questions. Thus, data is derived from the group's answers to the questions. The third characteristic is that the data is collected from a sample that represents the larger population under study. This study collected data from a sample size of students in Family and Consumer Sciences' entry-level courses. The population in this study included students in Family and Consumer Sciences at three institutions of higher education in North Carolina (Fraenkel & Wallen, 2006).

A "Direct Administration to a Group" survey was implemented in the data collection. This method is best used when a researcher has an opportunity to survey a specific group in one place. The survey is usually given to the specific group at the same time and place. There are many advantages in utilizing this approach, to include a high response rate. In addition to the high response rate, costs are kept to a minimum as well as the researcher is available for questions from the respondents (Fraenkel & Wallen, 2006).

#### Instrument Development

The survey instrument was comprised of three different major sections: (I) Knowledge; (II) Attitudes; (III) Behaviors. The fourth section of the survey asked for the respondents' demographical data. Section I, the Knowledge portion, is comprised of multiple-choice questions. According to Fraenkel and Wallen (2006), most survey questions are multiple-choice or closed ended questions. The benefit of using multiple-choice questions is that there is less confusion for the respondent in selecting an answer (Fraenkel & Wallen, 2006). Sections II and III, the Attitude and Behavior portion, are both comprised of

statements utilizing a Likert Scale. The Likert Scale provides a selection for the respondents using a five-point scale: “strongly agree (SA), agree (A), undecided (U), disagree (D), and strongly disagree (SD) (Gronlund & Lund, 1990, p. 411).” Section IV, the Demographic portion, is comprised of multiple-choice questions. The Demographic questions are designed to collect background information on the respondents (Fraenkel & Wallen, 2006).

The survey instrument was created utilizing current research in the area of environmentally friendly clothing. The survey instrument was patterned after an instrument used in the research study, *Consumer Preferences for Blended Organic Cotton Apparel*. The concepts associated with eco fashion from the survey instrument were utilized in creating the instrument for this study. This research was sponsored through the Department of Apparel, Textiles and Interior Design at Kansas State University, as well as the Department of Fashion and Apparel Studies at University of Delaware (Hustvedt, 2006).

A note was included on the cover page informing the students on the topic of the survey and of its importance. The questionnaire format was designed in booklet form. According to Dillman (2007), utilizing a booklet format is highly preferred due to respondents feeling comfortable with starting on page one and progressing to the proceeding pages. Dillman (2007) also emphasized the importance of not beginning a questionnaire with demographic questions nor attitudinal scales. Having these components at the beginning, the respondent may not see relevance to the topic being surveyed. As a result, the students may become discouraged with completing the survey. The demographic information as well as attitudinal scales was reserved for the final section of the survey instrument (Dillman, 2007).

Based on Dillman's (2007) survey approach, the survey instrument included four sections. The content in each section was derived from the review of literature.

The first section was designed to measure a student's knowledge toward trends and issues in the apparel industry. This section contained twenty closed-ended questions. In designing the questions for the research instrument, Fraenkel and Wallen (2006) highlight the following criteria that should be used for closed-ended questions: "...be sure the question is unambiguous; keep the focus as simple as possible; keep the questions short; use common language; avoid the use of terms that might bias responses; avoid leading questions; and avoid double negatives" (Fraenkel & Wallen, 2006, p. 404). The first section was introduced with the question: "What do you know about trends and issues in the apparel industry?" This section provided each question with a selection of answers for the students to select. The students were instructed to circle the letter that they felt best answered each question. Important topics associated with environmental friendly apparel were identified in developing the closed-ended questions. The topics included eco friendly apparel companies, designers, and textiles. Concepts associated with organic, eco fashion, fair trade, and environmental issues were also included in the questions.

The second section was designed to measure the student's attitude toward environmentally friendly apparel. This section included fourteen attitudinal statements. Section two of the survey instrument was started with the question: "What is your opinion?" The students were asked to rate their agreement with each statement. The attitudinal statements identified positive and negative opinions associated with environmentally friendly

clothing. The third section requested the students to rate their clothing habits. The section started with the question: “What habits do you possess?” This section requested the students to circle a number next to each statement that best expressed their behavior. Section three was comprised of fourteen behavioral statements. Both of the attitude and behavior statements were derived from the literature on consumer behavior toward environmentally friendly apparel. The second and third sections consisted of positive and negative statements that were intertwined to prevent a response mind set. The fourth section requested students to provide a single response to the following information: age, gender, ethnic group, hometown size, income, and major.

The researcher’s graduate advisory committee served as a panel of experts in reviewing the survey instrument to assess the content validity of the questionnaire. Content validity ensures that the instrument is truly measuring the premise of the research objectives. In addition to having the panel of experts critique the survey, it is important for the survey to be field tested before it is administered to the desired population. The survey was administered to a group of students that was similar to the respondents to ensure reliability (Fraenkel & Wallen, 2006). The group consisted of 24 students enrolled in an upper level Human and Environmental Sciences’ course at Meredith College. The class consisted of college students at the junior and senior class level. The field test revealed no problems; therefore no changes were made to the survey instrument.

### The Population & Sample

The population for this study consisted of students in Family and Consumer Sciences at three institutions of higher education in North Carolina. The institutions were East Carolina University, Meredith College, and North Carolina Central University. The population was selected because they were representative of college Family and Consumer Science students in North Carolina.

East Carolina University (ECU) is historically known for their expertise in training teachers, located in Greenville, North Carolina. Today it is a public and co-ed institution, supporting 24,000 enrolled students. ECU offers degree programs at the undergraduate level, graduate level, specialist level, first-professional MD program, and doctoral programs (<http://www.ecu.edu/>, 2008).

Meredith College (MC) is among one of the largest independent private women's colleges in the United States, located in Raleigh, North Carolina. MC's emphasis is on liberal arts, serving 2,100 enrolled students. The college offers programs at the undergraduate level, as well as graduate and professional study and lifelong learning opportunities. The graduate school provides coeducational programs to include business, music, nutrition and education (<http://www.meredith.edu/>, 2008).

North Carolina Central University (NCCU) is historically known for being the nations first Black liberal arts institution, located in Durham, North Carolina. NCCU is a public institution offering degree programs at ascending levels to include: baccalaureate, masters,

and selected doctoral degrees. NCCU currently has approximately 9,000 students in attendance (<http://www.nccu.edu/>, 2008).

ECU, NCCU, and MC all represent qualities that are both similar and diverse in nature. ECU and NCCU are both classified as state supported institutions, whereas MC is considered private, not-for-profit (The Carnegie Foundation for the Advancement of Teaching, 2008). According to Carnegie Foundation for the Advancement of Teaching (2008), all three institutions offer four-year degree programs in three different dimensions. ECU is classified as a large four year, with more than 10,000 full time students enrolled. NCCU represents a medium four year classification, with up to 9,999 full time enrolled students. MC is classified as small four year, having a full time enrollment size of up to 2,999. Each category of enrollment size is represented for the three institutions (<http://www.carnegiefoundation.org>, 2008). NCCU is a historically Black institution, whereas MC is a women's college. Each institution is located in an urban setting. All three institutions represent a high ratio of female students of 69% and above (<http://www.petersons.com>, 2008). The three institutions were selected because they are representative of the FCS population in higher education of North Carolina.

A nonrandom purposive sampling was the chosen method in selecting the sample. Fraenkel and Wallen (2007) define purposive sampling as when:

on occasion, based on previous knowledge of a population and the specific purpose of the research, investigators use personal judgment to select a sample. Researchers

assume they can use their knowledge of the population to judge whether or not a particular sample will be represented (Fraenkel & Wallen, p100, 2007).

Students in Family and Consumer Sciences' entry-level courses were used for this research. As noted in Chapter 2, the inclusive concept of environmentally friendly clothing is one approach in fulfilling Family and Consumer Sciences' Body of Knowledge. The BOK model identifies core competencies that FCS must incorporate in their curricula. Students in Family and Consumer Sciences were selected for the research, due to the emphasis FCS implements towards the inclusion of resource development and sustainability in their curricula.

#### Data Collection

Surveys were administered to introductory level courses in FCS at three institutions of higher education, during the fall semester of 2007. A code was placed on the back of each survey indicating the location of the school. Each class member turned in a survey, for a total of 137 surveys. Sixty-three (63) students at Meredith College participated in the study, fifty-two (52) students at East Carolina University participated, and North Carolina Central University had twenty-two (22) students in the study. See Table 1.

Table 1

*Number of Respondents From the Three Institutions of Higher Education*

Institution	<u>n</u>
North Carolina Central	22
East Carolina University	52
Meredith College	63
Total	137

Instrument Reliability

Instrumental reliability was computed using Guttman Split-half for Section I (Knowledge), and Cronbach's Alpha was used for Section II (Attitudes). Discrepancy scores were calculated on Section III (Behaviors) of the instrument. In using the discrepancy score, actual responses are compared to ideal responses. Because of this procedure, it is not appropriate to calculate the reliability.

The knowledge section of the instrument had a reliability of .5349, which is lower than desired. Therefore the knowledge portion of the survey, section I, should be viewed cautiously. Perhaps this low reliability can be partially attributed to one question, which only one student answered correctly. It is also possible that certain types of tests will possess low reliability due to the level of difficulty (Gronlund & Linn, 1990). The attitude section of the instrument had a reliability of .7464. This section of the instrument is considered to possess



adequate reliability. In conducting research, a score of .70 or higher is considered adequate when determining reliability (Fraenkel & Wallen, 2007).

### Variables

The dependent variables were knowledge, attitudes and behaviors of college students toward environmentally friendly apparel enrolled in a FCS course. The independent variables included age, major, and hometown size.

### Data Analysis

The raw data was entered into the Statistical Package for the Social Sciences (SPSS). The alpha level was set at .05 to determine statistical significance.

1. Demographical data from the students were described using descriptive statistics.
2. Knowledge scores were calculated for each question in Section I. The frequency and percentage of students who correctly answered the multiple-choice question was determined. Closed ended questions are also easier to code on the computer
3. for analyzing the data (Fraenkel & Wallen, 2006). The Knowledge section was coded using either a "0" for an incorrect answer or a "1" for a correct answer. It should be noted that there were students who did not respond to a question. These responses were coded with a "9", which indicated no answer.
4. Descriptive statistics on the Attitude section (II) were computed, showing a mean and standard deviation. The data were presented in descending order. The Attitude section (II) utilized a Likert Scale. The scale included: (1) Strongly Disagree, (2) Disagree, (3) Undecided, (4) Agree, and (5) Strongly Agree. Both

positive and negative statements were used. For scoring purposes the negative statement scores were reverse scored to compute accurately with the positive statements. It should be noted that there were students who did not respond to one or more questions. These responses were coded with a “9”, which indicated no answer.

5. Descriptive statistics on the (III) Behavior Section were computed, showing a Mean and Standard Deviation. The data was presented in descending order. The (III) Behavior Section utilized a Likert-type Scale. The scale included: (1) Never, (2) Sometimes, (3) Undecided, (4) Almost Always, and (5) Always. A discrepancy score was calculated in scoring this section. Responses were subtracted from the ideal score in regards to behaviors. It should be noted that there were students who did not respond to a question. These responses were coded with a “9”, which indicated no answer.
6. t-tests were used to determine if there were differences in knowledge, attitudes, and behavior scores of students toward environmentally friendly apparel between Fashion Majors and other Family and Consumer Sciences majors. For analysis purposes Fashion Merchandising and Fashion Design Majors data was condensed into one Fashion Major category. Other majors in Family and Consumer Sciences were combined under the broad category of FCS Majors.

7. A one-way ANOVA was computed to determine if there were differences between student's hometown size and a student's knowledge, attitude, and behaviors toward environmentally friendly apparel. For analysis purposes the student's hometown size data was condensed into three categories: (1) Farm; In a rural area – but not a farm; & town under 10,000, (2) 10,000 – 50,000, (3) City over 50,000
8. Pearson Correlation coefficients were computed to determine if there were relationships between the knowledge, attitudes, and behaviors of the respondents toward environmentally friendly apparel and age.

## **Chapter 4 - Findings**

This chapter presents the findings of the survey that was given to student groups in order to determine their knowledge, attitudes, and behaviors toward environmentally friendly apparel. In addition to completing the survey, the respondents provided demographic information to include their age, gender, ethnic group, hometown size, total household income, and major.

### Demographic Information

The students surveyed were asked to complete a series of questions, which allow a means to capture important demographic data. The demographic data was used to stratify the data for analysis between respondent segments. The three items used for statistical analysis were: (a) age, (b) hometown size, and (c) major. The demographic breakout of all 137 respondents is presented in Tables 2 – 6.

#### *Age*

The three most common ages represented were 18, 19, and 20 year olds. The highest percentage of students was the 20 year olds at 25.5%, followed closely by the 19 year olds at 24.1%. Ranking third highest were the 18 year olds at 17.5%. The age group that was least represented were over the age of 30. In addition, one 44 year old, one 41 year old and one 31 year old each represented 00.7% of those surveyed. See Table 2.

Table 2

*Age of Responding Students*

Age	<u>n</u>	<u>%</u>
18	24	17.5
19	33	24.1
20	35	25.5
21	20	14.6
22	5	03.6
23	4	02.9
24	3	02.2
25	1	00.7
26	2	01.5
28	2	01.5
31	1	00.7
41	1	00.7
44	1	00.7
Missing	5	03.6
Total Students	137	100

## Gender

The majority of the survey respondents were female (94.2%), whereas the male population made up only 02.9% of all respondents. See Table 3.

Table 3

*Gender of Responding Students*

Gender	<u>n</u>	<u>%</u>
Male	4	02.9
Female	129	94.2
Missing	4	2.9
Total Students	137	100

## Ethnic Group

The following ethnic groups were identified: (a) American Indian or Alaska Native, (b) Asian, (c) Black or African American, (d) Hispanic or Latino, (e) Native Hawaiian or other Pacific Islander, (f) White or Caucasian, and (g) Other. For analysis purposes the American Indian or Alaska Native and Other Groups were combined. See Table 4. The majority of the students were White or Caucasian (65.7%). The second largest ethnic group was Black or African – American (19%), followed by the Other (06.6%) group selection. Both ethnic groups of Hispanic or Latino (02.2%) and Native Hawaiian or Pacific Islander (02.2%) were equally represented. The ethnic group that was least represented was the Asian population (00.7%).

Table 4

*Ethnic Groups of Responding Students*

Ethnic Group	<u>n</u>	<u>%</u>
White or Caucasian	90	65.7
Black or African - American	26	19.0
Other	9	06.6
Hispanic or Latino	3	02.2
Native Hawaiian or other Pacific Islander	3	02.2
Asian	1	00.7
Missing	5	03.6
Total	137	100

## Hometown Size

The following hometown sizes were options on the survey instrument: (a) Farm, (b) In rural area, but not a farm, (c) Town under 10,000, (d) Town of 10,000 – 50,000, and (e) City over 50,000. The majority of the respondents were from a city over 50,000 making up 38% of those surveyed. The second largest category was a town with a population range of 10,000 – 50,000 making up 25% of those surveyed. The hometown size with the smallest representation was the farm at only 8%. See Table 5.

Table 5

*Hometown Size of Responding Students*

Hometown size	<u>n</u>	<u>%</u>
Farm	11	08.0
In rural area, but not a farm	15	10.9
Town under 10,000	18	13.1
Town of 10,000 – 50,000	35	25.5
City over 50,000	52	38.0
Missing	6	04.4
Total	137	100

## Major

A key element measured in the demographic analysis was the students' major area of study. Fifty-seven of the students surveyed indicated Fashion Merchandising as their major. In a related field, six students indicated Fashion Design as their major, resulting in 45.9% of all respondents identifying some aspect of Fashion as their major area of study. The next most popular areas of study were Child Development and Interior Design each representing 11.7% of those surveyed. See Table 6.



Table 6

*Academic Major of Responding Students*

Major	<u>n</u>	<u>%</u>
Fashion Merchandising & Design	57	41.6
Fashion Design	6	04.4
Child Development	16	11.7
Interior Design	16	11.7
Family and Consumer Sciences	13	09.5
Food and Nutrition	8	05.8
Other	11	08.0
Undecided	1	00.7
Missing	9	06.6
Total	137	100

DataResearch Question 1 - Knowledge

Question: What level of knowledge do college students possess about environmentally friendly apparel?

Findings: Section I of the survey instrument titled, “Trends and Issues in the Apparel Industry”, was comprised of twenty questions designed to assess the students’ factual knowledge of Eco Fashion. The mean knowledge score was 46%. Students scored the

highest on the question “Green clothing refers to using all natural materials.” Nearly 90% of the students chose the correct answer. Eighty-one percent of the students correctly determined that eco-clothes are made from organic materials that are produced without pesticides. Nearly 74% of the students correctly identified that people who buy eco friendly apparel are probably concerned with environmental issues. Only one student (0.7%) correctly concluded that “SORR” is the acronym for the Swap-O-Rama-Rama environmental initiative. Students also scored low on the question, “Which of the following is not used in the construction of eco friendly apparel”. Only 8.8% of the respondents correctly determined the resources used in the construction of eco friendly apparel. Approximately 20% of the students accurately determined that one of the characteristics of eco fashion is fair trade, defined as workers receiving fair wages and decent working conditions. The data in Section I reveals that students did not score well on questions that require a detailed knowledge toward environmentally friendly clothing. However, the students surveyed possess a general awareness toward issues related to environmentally friendly apparel. See all the items in Table 7. The survey instrument used in Section I can be found in Appendix A.

Table 7

*Students' Knowledge of Environmentally Friendly Apparel*

Knowledge Questions	% of Students who Correctly Answered
Green clothing refers to:	89.9
Eco-clothes are made from _____ materials that are produced_____.	81.0
People who buy eco friendly apparel are probably concerned with:	73.7
Eco Fashion is most closely associated with which concept?	71.5
Eco Fashion focuses on clothing that:	69.3
Eco Fashion encompasses all of the concepts except:	63.5
What material is most used for sustainable textile:	62.8
Which shoe company is known for their eco-friendly designs:	54.0
In regards to using Hemp in clothing construction:	51.8
Which statement is correct:	46.0
Edun is:	38.7
Which of the following is a sustainable fabric?	30.7
Who of the following is known for Eco Fashion?	28.5
Polar fleece can be made of:	28.5
Textile recycling companies are often located in:	24.8
Lyocell is:	22.6
One of the characteristics of Eco Fashion is fair trade.	19.7
Which of the following is not used in the construction of eco friendly apparel?	08.8
SORR is an environmental initiative that stands for:	00.7
Mean Knowledge Score	46.0%

### Research Question 2 - Attitude

Question: What are the attitudes possessed by college students toward environmentally friendly apparel?

Findings: Section II measured the attitudes of students toward environmentally friendly apparel. This section utilized a Likert scale. The scale included: (1) Strongly Disagree, (2) Disagree, (3) Undecided, (4) Agree, and (5) Strongly Agree. The attitude section of the instrument contained fourteen statements. The summated attitude rating was 46.16. The highest possible rating was 70 and the lowest possible rating was 14. A rating of 70 would indicate that the student is extremely adamant about the importance of eco fashion. A score of 42 is considered a midpoint score; it is midway between 14 and 70. Negative statements were reverse coded. The research shows that the students surveyed had a summated attitude rating slightly above the midpoint at 46.16%. Therefore, the survey participants potentially have an attitude that supports environmentally friendly fashion. The strongest attitude statement in this section was: "Major retailers should carry environmental friendly products" (3.93), followed by: "The dyes and chemicals used in apparel production can be harmful to the environment" at a score of 3.84. and "It takes more energy to recycle clothing than it is worth" at 3.77. The lowest rated statement was "I go out of my way to buy clothing produced from fairly traded fibers" (2.25). The second lowest rating was the statement: "I prefer to buy products made locally" (2.87). The third lowest rated statement was: "I would not go out of my way to purchase a garment classified as Eco Fashion" (2.89).

See Table 8 for a complete list of the attitude statements. The survey instrument used in Section II can be found in Appendix A.

Table 8

*Students' Attitude Toward Environmentally Friendly Apparel*

Attitude Statements	Mean
Major retailers should carry environmental friendly products.	03.93
The dyes and chemicals used in apparel production can be harmful to the environment.	03.84
* It takes more energy to recycle clothing than it is worth.	03.77
* Eco friendly apparel is a fad that will soon go away.	03.66
I would buy eco friendly apparel to help support organic farming.	03.64
* Eco Fashions are primarily for "tree huggers."	03.58
Sustainable agriculture is important to me.	03.37
The clothing purchases I make as an individual have an impact on the environment.	03.33
Sustainable practices are present in the fashion industry.	03.28
I feel that I have an ethical obligation to purchase eco friendly apparel.	02.90
* Eco friendly clothing is too expensive.	02.89
* I would not go out of my way to purchase a garment classified as Eco Fashion.	02.89
I prefer to buy products made locally.	02.87
I go out of my way to buy clothing produced from fairly traded fibers.	02.25
Summated Mean Attitude Score	46.16

*Note.* 1=Strongly Disagree, 2=Disagree, 3=Undecided, 4=Agree, 5=Strongly Agree

\* Reverse coded items.

### Research Question 3 - Behavior

Question: What eco fashion behaviors do college students exhibit?

Findings: Section III measured the clothing behaviors of students that could be classified as environmentally friendly. This section utilized a Likert scale. The scale included: (1) Never, (2) Sometimes, (3) Undecided, (4) Almost Always, and (5) Always. The behavior section of the instrument contained fourteen statements. A discrepancy score was computed in evaluating the behaviors of college students toward eco fashion. A discrepancy score refers to how far away the student's response was positioned from the ideal response. Therefore a score of 0 indicates an ideal score of possessing environmentally friendly behaviors toward apparel. A score of 56 would indicate the student does not practice behaviors that are environmentally friendly. The midpoint on the scale is 28. For research purposes if a student scored below a 28, then they were considered to exhibit environmentally friendly behaviors, and if they scored above 28 they were considered to not practice environmentally friendly behaviors. The range of discrepancy scores was from 16 to 41 with a mean score of 23.36. The summated discrepancy score of 23.36 indicates that overall the students tend to practice environmentally friendly behaviors. The statements that the students scored closest to the ideal are: I donate my clothing to Goodwill or some other charity (00.76); When I get tired of clothing, I throw it away (00.76); and I place all unwanted clothing in a box, and store it away in my home (00.90). The least ideal statements that the students scored were: I purchase clothing only from pro-environmental companies (3.01); When I purchase clothing I am more concerned about the look and feel of the garment

versus if it's environmentally friendly (2.67); and I am an "organic consumer" (2.65). See Table 9 for a list of all the behaviors. The survey instrument used in Section III can be found in Appendix A.



Table 9

*Students' Behavior Toward Environmentally Friendly Apparel*

Behavior Statement	Discrepancy Score
I purchase clothing only from pro-environmental companies.	03.01
When I purchase clothing I am more concerned about the look and feel of the garment versus if it's environmentally friendly.	02.67
I am an "organic consumer."	02.65
I use worn out garments for rags to do my part in decreasing environmental problems.	02.61
I am an "environmental consumer."	02.44
I have bought apparel that is made from natural fibers.	02.42
Purchasing environmentally friendly clothing, increases my peace of mind.	02.39
I purchase garments that are produced in an environmentally safe manner.	02.37
The next time I go shopping, I will purchase an eco friendly apparel product.	02.15
I buy clothing made from manmade fibers.	01.98
I depend upon my friend's opinion when purchasing clothing.	01.13
I place all unwanted clothing in a box, and store it away in my home.	00.90
When I get tired of clothing, I throw it away.	00.76
I donate my old clothing to Goodwill or some other charity.	00.76
Summated Discrepancy Score	23.36

*Note.* 1=Never, 2=Sometimes, 3=Undecided, 4=Almost Always, 5=Always

### Correlation Information for Research Questions 4, 5, and 6

Correlations were calculated for research questions 4, 5, and 6. Correlations can range from  $-1.00$  to  $1.00$ . Correlations convey the following interpretations:  $1.00$  is considered a perfect positive correlation;  $-1.00$  is considered a perfect negative correlation; and  $.00$  is considered no correlation. In interpreting the strengths of the correlations refer to the following: Very Weak (  $.00 - .20$  ); Weak (  $.21 - .40$  ); Moderate (  $.41 - .60$  ); Strong (  $.61 - .80$  ); and Very Strong (  $.81 - 1.00$  ) (Fraenkel & Wallen, 2006).

#### Research Question 4

Question: Is there a correlation between age and knowledge of college students about environmentally friendly apparel?

Findings: The relationship between age and knowledge shows a correlation of  $.024$  ( $p=.812$ ). Therefore, this relationship reflects a very weak correlation. There is no practical or statistical significance between age and knowledge of the students. See Table 10.

#### Research Question 5

Question: Is there a correlation between age and attitudes toward environmentally friendly apparel?

Findings: The relationship between age and attitude shows a correlation of  $.241$  ( $p=.006$ ). Therefore, this relationship reflects a weak correlation. There is a statistical significance between age and attitude of the students, but because of the weak correlation this is not of practical significance. As the student's age increases so does their attitude toward environmentally friendly apparel. See Table 10.

### Research Question 6

Question: Is there a correlation between age and environmentally friendly apparel behaviors of college students?

Findings: The relationship between behavior and age shows a correlation of  $-.075$  ( $p=.398$ ). Therefore, this relationship reflects a weak correlation. There is no statistical significance between behavior and knowledge of the students. See Table 10.

Table 10

#### *Relationship Between Age and Knowledge, Attitudes and Behaviors*

	N	r	Sig.
Knowledge	103	.024	.812
Behaviors	128	-.075	.398
Attitudes	128	.241	.006

### Research Question 7

Question: Is there a difference between the hometown size of college students and knowledge about environmentally friendly apparel?

Findings: The data shows little difference between the students' hometown size and knowledge of environmentally friendly apparel. Because of the low numbers in two of the categories, the data were combined into three categories. Students who lived in the city had the lowest mean score (8.69). The highest mean score were from students who lived in areas

with a population in between 10,000 and 50,000 (10.07). The students from rural areas had a mean score of 8.90. These scores were not statistically significant ( $F = 2.01$ ,  $df = 2$ ,  $p = .14$ ). Therefore, the size of the student's hometown did not influence their knowledge of environmental friendly apparel. See Tables 11 and 12.

#### Research Question 8

Question: Is there a difference between the hometown size of college students and attitudes toward environmentally friendly apparel?

Findings: The results show little difference between hometown size and attitudes toward environmentally friendly apparel. Students from each of the three hometown sizes had similar mean scores. Students who lived in a population between 10,000 and 50,000 possessed a mean score of 45.65. Students from the city of over 50,000 had a mean score of 45.78. Students from a rural area obtained a mean score of 47.45. A one-way ANOVA test was utilized and showed scores were not statistically significant ( $F = 1.08$ ,  $df = 2$ ,  $p = .34$ ). See Tables 11 and 12.

#### Research Question 9

Question: Is there a difference between hometown size of college students and environmentally friendly apparel behaviors?

Findings: Students did not show a difference between their hometown size and behaviors. Students from rural areas with a population less than 10,000 possessed a mean discrepancy score of 27.90. Students from areas with a population between 10,000 and 50,000 had a mean discrepancy score of 28.51. Students who live in the city closely followed with a

mean discrepancy score of 28.61. The one-way ANOVA test revealed the scores were not statistically significant ( $F = .23$ ,  $df = 2$ ,  $p = .79$ ). See Tables 11 and 12.

Table 11

*Mean Knowledge, Attitudes, and Behaviors Scores of Students Classified by Hometown Size*

	<u>n</u>	<u>M</u>	<u>SD</u>
<b>Knowledge</b>			
Rural (less than 10,000)	40	08.90	02.39
Areas Between 10,000 – 50,000	27	10.07	03.11
City (greater than 50,000)	35	08.69	03.15
<b>Attitudes</b>			
Rural (less than 10,000)	44	47.45	05.89
Areas Between 10,000 – 50,000	34	45.65	06.83
City (greater than 50,000)	49	45.78	06.39
<b>Behaviors</b>			
Rural (less than 10,000)	41	27.90	05.15
Areas Between 10,000 – 50,000	35	28.51	06.14
City (greater than 50,000)	51	28.61	04.53

Table 12

*One-way ANOVAs of Knowledge, Attitude, and Behaviors of the Responding Student's Hometown size*

Source	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>Sig.</u>
Attitude					
Between Groups	2	88.56	43.28	1.08	.34
Within Groups	124	4991.20	40.25		
Total	126	5077.76			
Behaviors					
Between Groups	2	12.55	6.27	.23	.79
Within Groups	124	3370.51	27.18		
Total	126	3383.06			
Knowledge					
Between Groups	2	33.08	16.54	2.01	.14
Within Groups	99	813.00	8.21		
Total	101	846.08			

#### Research Question 10

Question: Is there a difference between major of college students and knowledge about environmentally friendly apparel?

Findings: The mean knowledge score of Fashion Related Majors was 8.68 out of 20 items (43.4 percent). The mean knowledge score of other Family Consumer Sciences Majors was 9.47 out of 20 items (47.4 percent). Even though there appears to be a difference, it's not statistically significance ( $t = -1.41$ ,  $df = 102$ ,  $p = .162$ ). The Fashion Related Majors

are not more knowledgeable in the area of environmentally friendly apparel than other Family and Consumer Sciences Majors. See Table 13.

#### Research Question 11

Question: Is there a difference between major of college students and attitudes toward environmentally friendly apparel?

Findings: The mean attitude score of Fashion Related Majors was 45.50 out of a possible 70. The mean attitude score of other Family Consumer Sciences Majors was 46.76. These differences were not statistically significant ( $t = -1.31$ ,  $df = 126$ ,  $p = .260$ ). The Fashion Related Majors do not possess a more favorable attitude toward environmentally friendly apparel than other Family and Consumer Sciences Majors. See Table 13.

#### Research Question 12

Question: Is there a difference between major of college students and environmentally friendly apparel behaviors?

Findings: The mean behavior discrepancy score of Fashion Related Majors was 28.73. The mean discrepancy behavior score of other Family Consumer Sciences Majors was 28.02. These differences were not statistically significant ( $t = .78$ ,  $df = 126$ ,  $p = .436$ ). The Fashion Related Majors do not exhibit a greater level of environmentally friendly behaviors toward apparel than other Family and Consumer Sciences Majors. See Table 13.

Table 13

*t-test scores for the Comparisons of Knowledge, Attitudes, and Behaviors of Students Toward Environmentally Friendly Apparel Between Fashion Related Majors and Other Family and Consumer Sciences Majors*

	<u>n</u>	<u>M</u>	<u>SD</u>	<u>t</u>	<u>df</u>	<u>p</u>
Knowledge						
Fashion Related Majors	47	8.68	2.82	-1.41	102	.162
Other Family Consumer Sciences Majors	57	9.47	2.89			
Attitudes						
Fashion Related Majors	62	45.50	6.09	-1.13	126	.260
Other Family Consumer Sciences Majors	66	46.76	6.47			
Habits						
Fashion Related Majors	63	28.73	5.12	.78	126	.436
Other Family Consumer Sciences Majors	65	28.02	5.21			



## **Chapter 5 – Conclusions and Recommendations**

This purpose of this study was designed to evaluate the level of knowledge, attitudes, and behaviors of college students toward environmentally friendly apparel. The research study involved 137 college students enrolled in an entry-level family and consumer sciences (FCS) course from three different institutions of higher education in North Carolina. This chapter presents the conclusions and discussions on the research findings, general recommendations, and recommendations for future research

### Conclusions and Discussions

Based upon the findings of this research, four conclusions were identified and discussed. The conclusions and their discussion are presented with relative data in this section.

Conclusion 1 and Discussion: The FCS students at the three colleges had a low to moderate level of knowledge regarding environmentally friendly apparel.

The mean knowledge score regarding “Trends and Issues in the Apparel Industry” was 46%. This score indicates a low to moderate level of knowledge in the area of environmentally friendly apparel. One may conclude that students did not possess an in depth amount of knowledge toward environmentally friendly apparel. Due to the current environmental crises, perhaps the curriculum needs to possess more environmental inclusion. It is possible that as the student becomes educated on the current environmental crises, they will see the importance of environmentally friendly apparel. Baugher (2000) urged others to

view the environment as a family. She suggests that behavior change is often a result of an individual's exposure or past experience toward an issue. Baugher (2000) states, "Understanding regulations and their implementation is critical to the health of all of us in the environments we create" (Baugher, 2000, paragraph 6). Baugher further develops the discussion with the concept that an individual must take an approach that serves the environment versus the environment to serve the individual. The same concept may be applied toward students and their learning environment. As a student becomes aware of environmental issues, they have the potential to prompt lifestyle behaviors that are friendly to the environment (Baugher, 2000). Research shows that education is the primary factor for engaging in environmental behaviors (Dickson, 2000; Birtwistle & Moore, 2007; Shim, 1995; Koch & Domina, 1999; Hawley, 2006; Domina & Koch, 1997; Young, Jirousek & Ashdown, 2004; Domina & Koch, 2002).

Overall, there is room for improvement in the level of knowledge possessed by college students toward environmentally friendly apparel. The research findings indicate the students possess a minimum level of knowledge. The analysis revealed a greater knowledge was possessed toward the questions that were more generalized, and the students were not as knowledgeable on the questions that required specific details. For example, students did well on the question that requested general information on what green clothing refers to, responding to the correct answer of using all natural materials. The question the students scored the lowest on was about SORR is an environmental initiative that stands for Swap-O-

Rama-Rama. One student answered this question correctly. Perhaps the students' general knowledge of environmentally friendly apparel is attributed toward their current exposure through campus activities and coursework. This conclusion is found to be similar to the research conducted by Koch and Domina (1997). The study conducted by Koch and Domina (1997) suggests that college students reveal a concern for the environment and participation in textile recycling, due to their exposure to environmental issues on campus through programs and courses. This study suggests that due to their status as students, this consumer segment takes the role of fashion opinion leaders. Thus, students serve as effective communicators in educating other consumer segments. As students take the role of educator, education will become increasingly important in fulfilling this role (Koch & Domina, 1997). Conclusion 2 and Discussion: Students are leaning toward having an attitude that supports being environmentally friendly in regards to clothing.

The summate attitude score was 46.16 out of a possible 70, showing a score that is slightly above the midpoint score. One may conclude that students are open toward the idea of environmentally friendly clothing, however they would not go out of their way for the purchase. The students would not seek opportunities to become ethical consumers. In regards to attitudes, the research indicates that students have room to improve in this area. In looking at the data, students scored higher on the attitude statements that were directed toward broader concepts versus individual actions. For example, students scored the highest on the statement that states "Major retailers should carry environmentally friendly products" and the lowest on the statement that states "I go out of my way to buy clothing produced

from fairly traded fibers.” This example illustrates the extreme attitudes the students possess. Perhaps, this comparison reveals that students possess a stronger attitude when eco-fashion is considered to be the fashion industry’s responsibility versus an individual responsibility. Existing research supports that consumers feel it is the industry and the government’s responsibility for providing eco-conscious products to the consumer (Joergens, 2006).

Students scored lower on statements that measured attitudes toward specific behaviors such as purchasing products made locally and purchasing garments classified as eco fashion. Perhaps, this comparison indicates that students feel limited in their purchasing decisions that are solely based on the environment. This concept is similar to the research conducted by Dickson (2000). Dickson (2000) concluded that consumers might view purchasing environmentally friendly as limiting their product choice. In contrast, Joergens (2006) found that consumers purchase environmentally friendly products only if it has a direct impact on the individual. Products such as organic food and fair trade items were popular items to purchase due to their direct impact on one’s health (Joergens, 2006).

Conclusion 3 and Discussion: Students generally practice environmentally friendly apparel behaviors.

The summated discrepancy score of 23.36 indicates that there is room for improvement for students to exhibit environmentally friendly apparel behaviors. Students exhibited the highest eco-friendly behaviors toward practices such as donating their unwanted clothing to Goodwill or charities rather than keeping or discarding the articles of clothing. Students exhibited the lowest eco-friendly behavior to statements that supported

clothing purchases from pro-environmental companies. In reviewing the data, there could possibly be a difference between the behaviors of taking the initiative to purchase environmentally friendly clothing versus discarding clothing in a sustainable manner. Student's behavior supported sustainable efforts when it related to disposable patterns versus consumption patterns. However it is possible that this support reflects the convenience of the behavior. Perhaps, the act of donating clothing to charities is incorporated into the student's routine behavior and is not necessarily an act based on an environmental framework. This conclusion is similar in nature to previous studies in that convenience is a key factor in promoting behaviors that are environmentally friendly. Studies have shown that environmentally friendly methods that require the least planning and preparation are the methods that are the most used (Koch & Domina, 1999; Domina & Koch, 2002).

When purchasing clothing, students are more concerned about the look and feel of the garment, with less emphasis on environmental qualities. The findings support the idea that consumers will not purchase eco-fashion on ethics alone. The success of eco-fashion depends upon the question "What does it look like?" According to the literature, aesthetic appeal is the common thread that weaves through the concept of eco-fashion. Environmentally friendly apparel is largely dependent upon the aesthetic qualities it portrays to the consumer (Childress & Brownell, 2005; Edelson, 2007; Joergens, 2006). This conclusion is found to be similar to the study conducted by Joergens (2006). The research from Joergens' (2006) study indicates that respondents possessed supporting attitudes toward

the purchase of ethical fashion only if it upheld the same qualities in style and prices as other leading fashion brands. Existing research supports that consumers are motivated to purchase ethically due to aesthetic qualities versus their contribution on the environment (Joergens, 2006).

Conclusion 4 and Discussion: The type of major, whether it's Fashion or other Family and Consumer Sciences, did not show a higher awareness of environmentally friendly apparel. The student's hometown size did not show a difference in their knowledge, attitude and behavior. The student's age did not have a relationship with their knowledge and behavior. However, the older students possessed a more favorable attitude toward environmentally friendly clothing.

In an attempt to delve more deeply into the three major research questions, a variety of variables were examined to further explain the knowledge, attitudes, and behavior to environmentally friendly apparel. Major was among the variables explored in relation to knowledge, attitudes, and behaviors. The data analysis reviewed two classifications of majors: Fashion and other Family & Consumer Sciences. The data indicates that there was not a difference between type of major and a higher awareness of environmentally friendly apparel. Fashion related majors and other FCS majors are closely related under the same discipline of Family and Consumer Sciences. Perhaps the majors within FCS may use similar curriculum strategies in promoting the level of knowledge, behavior, and attitude toward incorporating environmental awareness in the classroom. As discussed in the review of literature, this environmental focus will satisfy many different levels of the Family

& Consumer Sciences' Body of Knowledge, to include protecting the environment while accommodating growth, globalization, and focus on the community (Baugher et al, 2000).

The analysis of variance on hometown size to knowledge, attitudes, and behaviors were found to not be statistically significant. Also, the relationship of age and how it correlates with knowledge, attitudes, and behaviors were compared for statistical significance. While age did not have a relationship with knowledge and behavior, it did have a slight statistical significance on attitudes. Perhaps as an individual becomes older they realize the importance of protecting the environment, developing a more favorable attitude toward sustainable practices. This finding is similar to the research conducted by Shim (1995). Shim (1995) identified age as being a factor in developing environmentally friendly behaviors. Shim (1995) found that older students, in their early 20s, participated in environmentally friendly behaviors at a higher rate than younger students.

### Recommendations

#### Recommendations for Practice

Family and Consumer Sciences possess (FCS) a rich heritage of identifying current issues and addressing those issues in preparing others for the future. FCS consistently strives to incorporate society's current issues into their discipline. In maintaining this tradition, this research provides opportunities for professionals in FCS to focus on future trends that will impact the environment. The following are recommendations for practice:

- 1) The literature (Dickson, 2000; Birtwistle & Moore, 2007; Shim, 1995; Koch & Domina, 1999; Hawley, 2006; Domina & Koch, 1997; Young, Jirousek & Ashdown,

2004; Domina & Koch, 2002), indicates that as students become educated on environmental issues, they may see the importance of environmentally friendly apparel. One recommendation that has developed from the findings of this study is to design curricula in all subject matter areas of Family and Consumer Sciences to address sustainability. The BOK model incorporates Resource Development and Sustainability as one of the themes that should be addressed for the future. This theme states “resource development and sustainability involves protecting the environment, promoting, sustainable practices, creating public policy, and managing resources from generation to generation” (Nickols, & Anderson, 2001, p. 5). In hopes of increasing the knowledge base in regards to environmentally friendly apparel, sustainability needs to be infused through out the FCS curricula. The curricula needs to provide students a foundation in developing sustainable practices that will enable them to address environmental issues in preparing for the future. Gaining knowledge in sustainable practices starts with educating students towards environmentally friendly apparel. As student’s become more knowledgeable toward eco-fashion, it is possible that positive attitudes and behaviors will increase.

- 2) This study supports the idea that students possess a low to moderate level of knowledge toward eco fashion. Therefore, FCS professionals need to be educated on environmental issues for the purpose of increasing environmental knowledge among students. FCS professionals may be educated on environmental issues through trainings and workshops that may aid in developing an environmental framework in



developing their educational objectives. Through the years FCS professionals have been charged with utilizing the critical science approach in their professional practices. “When addressing practical perennial problems, a critical science perspective includes knowledge focused on human interests, communicative theory grounded in dialogue, and actions based on moral consciousness (Vincenti, Smith, & Fabian, 2004, p. 63).” FCS is referred to as a practical science that is socially and morally oriented. “Family and consumer sciences professionals need to be rational in their claims to know (subject matter knowledge), in their organization of this knowledge, and in their professional practice (Vincenti, Smith, & Fabian, 2004, p. 65).” This perspective supports professionals becoming educated on environmental issues. Educating FCS professionals on environmental issues addresses the concern for professionals to grow in their knowledge base and practices, in turn creating a framework for student’s knowledge to increase.

- 3) The literature (Koch & Domina, 1997) suggests that the student’s general knowledge is attributed toward their current exposure on campus, and through their coursework. Also, students are fashion opinion leaders that influence their peers and parents. Therefore, there is a need to encourage student’s organizations to sponsor environmental events on campus in building awareness to environmental issues campus wide.
- 4) FCS professionals need to promote environmental campus events, and structure their lesson plans in sequence with the environmental events. The profession also needs to

seek opportunities to involve their campus and students in community outreach collaborations with existing environmental organizations. The literature (Baugher, 2000) indicates that the more exposure one has toward environmental issues, the more likely they are to engage in behaviors that are friendly to the environment. Through the literature, education is a key factor in developing eco consciousness among consumers.

- 5) This study indicates that students supported sustainable efforts for disposable patterns versus consumption patterns. Therefore, there is a need for FCS professionals to promote clothing donation drives on campus in promoting environmental awareness. In addition, FCS professionals should seek community service opportunities with local organizations that sponsor clothing thrift shops.
- 6) The literature (Childress & Brownell, 2005; Edelson, 2007; Joergens, 2006) supports the findings that students are concerned with the look and feel of a garment versus the environmental qualities. Thus, FCS professionals need to identify leading fashion designers that are known for their efforts toward environmental apparel in promoting environmental awareness. Exposing students to existing eco-conscious designers supports the idea that fashionable trends are capable of possessing eco friendly attributes.
- 7) There is a need for FCS professional to incorporate the elements of environmental fabrics and redesigning existing garments into design and clothing construction courses. FCS professional need to seek opportunities for contests in showcasing their

students work in eco fashion. Providing incentives will motivate the students in creating and gaining exposure to environmental designs.

### Recommendations for Future Research

Several recommendations for future research emerged based on the findings from this study. The recommendations for extended research may provide a broader viewpoint in the area of promoting eco consciousness. The following recommendations apply to future research opportunities:

- 1) One research opportunity would be to evaluate eco consciousness of students at other institutions of higher education. All FCS programs should be reviewed to include Interior Design, Family and Consumer Sciences, Foods and Nutrition, and Child Development on their knowledge, attitude and behaviors toward environmental trends and issues. Evaluating eco consciousness of students in all FCS programs supports Resource Development and Sustainability as it relates to Family and Consumer Sciences' Body of Knowledge.
- 2) It is recommended to expand the scope of the research to include all environmental issues in Family and Consumer Sciences (FCS). The focus would extend beyond apparel to correspond to each discipline.
- 3) An additional topic from this research study would be to survey FCS professionals to ascertain their knowledge, attitudes, and behaviors toward environmentally friendly apparel.

- 4) Based upon this study and current research, evaluate existing environmental initiatives on campuses of higher education. Select schools of higher education that are known for their environmental inclusion, and identify successful practices to see if this impacts students' knowledge, attitudes or behaviors.
- 5) It is also recommended that research should be conducted on additional stakeholders in the fashion industry. The research should examine the knowledge, attitudes, and behaviors of fashion opinion leaders, designers, clothing manufacturers, and retailers toward environmentally friendly apparel.
- 6) Additional research needs to be conducted upon the motivational factors present among consumers, fashion opinion leaders, designers, manufacturers, and retailers that possess environmentally friendly knowledge, attitudes, and behaviors. Each stakeholder has a different motive in the fashion industry. Through evaluating each eco conscious stakeholder, a comprehensive assessment can be made in identifying motivational factors on why others become eco-friendly. Gaining an understanding on others motivational factors, will aid in addressing student's knowledge, attitudes, and behaviors toward environmental issues.
- 7) It is recommended to conduct a longitudinal study that will observe how existing programs promote environmental awareness and compare the before and after of the knowledge, attitude, and behavior of students during their tenure. A longitudinal study may further explain how campus opportunities and age of students impact environmental awareness.

- 8) It is suggested to conduct the study at colleges and universities that do not have Family and Consumer Sciences programs. This recommendation gives the researcher an opportunity to explore knowledge, attitudes, and behaviors of students across all disciplines in higher education.
- 9) Another recommendation is to increase the male gender representation in sample selection, due to this study being predominately females, The research findings will be strengthened by studying an equal representation of both genders.
- 10) It is also recommended to research existing donations received from thrift shops. This research will evaluate the motivational factors of the donations, and if the behavior of donating is based upon environmental factors. The literature shows that the majority of environmental behaviors are attributed toward convenience. Evaluating motivational factors that are present in the donations will allow one to gain insight on whether the action is based upon environmental qualities or convenience.

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**APPENDIX**



## APPENDIX

### Survey Instrument

**I. What do you know about Trends and Issues in the Apparel Industry? Please circle the letter that you feel best answers the following:**

1. Eco Fashion is most closely associated with which concept?
  - a. Being fashionable
  - b. Dressing conservatively
  - c. Inexpensive clothing
  - d. Environmental sustainability
  - e. All of the above
  
2. A linen-like fabric made from a Japanese leaf that contains anti-allergen and anti-bacteria properties is:
  - a. Sasawashi
  - b. Maplelina
  - c. Ingeo
  - d. Soy Silk
  - e. Flax
  
3. One of the characteristics of Eco Fashion is fair trade. This means:
  - a. They can be imported or exported among countries and no tariffs are charged
  - b. The people who make them are paid a fair price and have decent working conditions.
  - c. The people who make the clothing trade them for other goods
  - d. They are produced in countries that belong to NAFTA.
  - e. All of the above
  
4. Eco-clothes are made from \_\_\_\_\_ materials that are produced \_\_\_\_\_.
  - a. Inorganic, using only human power
  - b. Petroleum, with low levels of water
  - c. Origami, using no tractor power
  - d. Organic, without pesticides
  - e. Natural, in non-communist countries
  
5. Who of the following is known for Eco Fashion?
  - a. Linda Loudermilk
  - b. Halston
  - c. Ralph Lauren
  - d. Donna Karen
  - e. All are know for their Eco Fashion Lines of clothing

6. SORR is an environmental initiative that stands for:
  - a. Sustainable Operations Reuse & Recycle
  - b. Safe Organic Renewable Reasoning
  - c. Swap-O-Rama-Rama
  - d. Social Organic Responsibility Recreated
  - e. Sasawashi & Origami Reusable Resources
7. Which shoe company is known for their eco-friendly designs:
  - a. IPATH
  - b. Nine West
  - c. Simple
  - d. A and C are both known for their eco-friendly designs
  - e. None of the companies are known for their eco-friendly designs
8. Edun is:
  - a. A clothing company that utilizes small, family-run factories based in Africa and South Africa.
  - b. Is a clothing company that is supported by Ali Hewson, wife of rock star Bono.
  - c. All the above.
  - d. None of the above.
9. Textile recycling companies are often located in:
  - a. Rural areas
  - b. Metropolitan areas
  - c. Suburban areas
  - d. Textile recycling companies are found equally in all the above
  - e. Textile recycling companies do not exist
10. Green clothing refers to:
  - a. Using green as the predominate color
  - b. Using cotton and cotton blends
  - c. Using all natural materials
  - d. Clothing made with union labor
11. Eco Fashion focuses on clothing that:
  - a. Consists of earth tone colors
  - b. Safari types of clothing style
  - c. Uses jungle and animal prints
  - d. None of the above

12. Which statement is correct:
- a. Bamboo is often used in apparel construction due to it's rapid growth without the use of pesticides.
  - b. It is not advisable to use Bamboo, due it's lack of durability.
  - c. Bamboo feels coarse to the touch, which makes it uncomfortable to wear.
  - d. Bamboo is an endangered plant and should not be used for clothing.
  - e. Bamboo can only produce beige color clothing.
13. Lyocell is:
- a. A fiber made from wood pulp cellulose
  - b. An eco-friendly fabric
  - c. Often referred to as Tencel
  - d. Often used in the place of Rayon
  - e. All the above
  - f. None of the above
14. Which of the following is not used in the construction of eco friendly apparel?
- a. Corn
  - b. Cotton
  - c. Bamboo
  - d. Suede
  - e. All the above are eco friendly apparel
15. Eco Fashion encompasses all of the concepts except:
- a. Acknowledges the environment
  - b. Considers the health of consumers
  - c. Acknowledges the use of polyester and rayon
  - d. Values the working conditions of people
16. In regards to using Hemp in clothing construction:
- a. Hemp has a strong odor, therefore it should not be used
  - b. Hemp is an itchy fabric
  - c. Hemp is highly combustible, therefore it should not be used
  - d. Hemp can be used to make clothing

17. Polar fleece can be made of:
  - a. Linen
  - b. Corn Silk
  - c. Recycled rubber
  - d. Recycled plastic bottles
  - e. Polar bear fur
18. Which of the following is a sustainable fabric?
  - a. Rayon
  - b. Nylon
  - c. Polyester
  - d. All the above are sustainable fabrics
  - e. None of the above are sustainable fabrics
19. People who buy eco friendly apparel are probably concerned with:
  - a. Buying clothing as cheaply as possible
  - b. Having the latest fashion trends
  - c. Environment issues
  - d. All the above
20. What material is most used for a sustainable textile:
  - a. Bamboo
  - b. Corn
  - c. Cotton
  - d. Silk
  - e. Lyocell

**II. What is your opinion? Please rate your agreement with the statements by circling one number next to each statement.**

	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Undecided</b>	<b>Agree</b>	<b>Strongly Agree</b>
1. The clothing purchases I make as an individual have no impact on the environment.	1	2	3	4	5
2. I feel that I have an ethical obligation to purchase eco friendly apparel.	1	2	3	4	5
3. Eco friendly apparel is too expensive.	1	2	3	4	5
4. I would buy eco friendly apparel to help support organic farming.	1	2	3	4	5
5. Eco Fashions are primarily for tree huggers.	1	2	3	4	5
6. I prefer to buy products made locally.	1	2	3	4	5
7. It takes more energy to recycle clothing than it is worth.	1	2	3	4	5
8. I would go out of my way to buy clothing produced from fairly traded fibers.	1	2	3	4	5
9. The dyes and chemicals used in apparel production can be harmful to the environment.	1	2	3	4	5
10. Sustainable agriculture is important to me.	1	2	3	4	5
11. I would not go out of my way to purchase a garment classified as Eco Fashion.	1	2	3	4	5
12. Major retailer should carry environmental friendly products.	1	2	3	4	5
13. Eco friendly apparel is a fad that will soon go away.	1	2	3	4	5
14. Sustainable practices are present in the fashion industry.	1	2	3	4	5

**III. What habits do you possess? Please rate your agreement with the statements by circling on a number next to each statement.**

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>Never</b>	<b>Sometimes</b>	<b>Undecided</b>	<b>Almost Always</b>	<b>Always</b>
1. I have bought apparel that is made from natural fiber.				1 2 3 4 5
2. I buy clothing made from manmade fabrics.				1 2 3 4 5
3. When I get tired of clothing, I throw it away.				1 2 3 4 5
4. I depend upon my friend's opinion when purchasing clothing.				1 2 3 4 5
5. I purchase garments that are produced in an environmentally safe manner.				1 2 3 4 5
6. When I purchase clothing I am more concerned about the look and feel of the garment versus if it's environmentally friendly.				1 2 3 4 5
7. The next time I go shopping, I will purchase an eco friendly apparel product.				1 2 3 4 5
8. I donate my old clothing to Goodwill or some other charity.				1 2 3 4 5
9. I place all unwanted clothing in a box, and store it away in my home.				1 2 3 4 5
10. I use worn out garments for rags to do my part in decreasing environmental problems.				1 2 3 4 5
11. I am an environmental consumer.				1 2 3 4 5
12. I purchase clothing only from pro-environmental companies.				1 2 3 4 5
13. Purchasing environmentally friendly clothing, increases my peace of mind.				1 2 3 4 5
14. I am an organic consumer.				1 2 3 4 5

**IV. Student Information:**

1. What is your age? (Please fill in the blank)  
\_\_\_\_\_ Years
2. What is your gender? (Please circle a letter)
  - a. Male
  - b. Female
3. What is your ethnic group? (Please circle a letter)
  - a. American Indian or Alaska Native
  - b. Asian
  - c. Black or African-American
  - d. Hispanic or Latino
  - e. Native Hawaiian or other Pacific Islander
  - f. White or Caucasian
  - g. Other
4. Where did you grow up? (Please circle a letter)
  - a. Farm
  - b. In a rural area, but not on a farm
  - c. Town under 10,000
  - d. Town of 10,000 – 50,000
  - e. City over 50,000
5. What was your total household income before taxes in 2006? (Please circle one letter)
  - a. Less than \$10,000
  - b. \$10,000 to \$24,999
  - c. \$25,000 to \$49,999
  - d. \$50,000 to \$74,999
  - e. \$75,000 to \$99,999
  - f. \$100,000 and Over
7. What is your Major? (Please fill in the blank)  
  
\_\_\_\_\_