

THESIS

DESIGNING WOMEN'S SNOWBOARDING CLOTHING: APPLICATION AND EXPANSION OF THE FEA CONSUMER NEEDS MODEL

Submitted by

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ABSTRACT

DESIGNING WOMEN'S SNOWBOARDING CLOTHING:

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This mixed-methods research study examined women's snowboarding clothing preferences in relation to Lamb and Kallal's (1992) FEA Consumer Needs Model. A fourth element, environmental, was proposed as an addition to the model but its inclusion was not supported. The model was used to guide the study and garment design.

Fifteen women snowboarders participated in an interview and survey about their snowboarding clothing desires and preferences. The data from the initial interview and survey was used to create two prototype snowboarding jackets and two prototype snowboarding pants. Photos and fabric swatches of the garments were analyzed by the original participants to complete the prototype evaluation survey feedback. Fourteen participants participated in the prototype evaluation survey.

Results showed the participants rated functional garment elements as the most important consideration followed by the aesthetic elements, expressive elements, and finally environmental elements. Although color was an extremely important garment element, prototype evaluations showed the participants preferred the monotone black, feminine fitted jacket and the gray pinstripe, sleek fitting pant. Participants were not willing to spend more than 50 dollars more than their original budget nor would they give up any functional features because of the garment's environmental properties.

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Chapter One

Introduction

Background

Snowboarding was introduced to the public in the late 1960s and early 1970s (Thorpe, 2005) and has gained considerable popularity among a wide variety of individuals (Young, 2004). The national ski and snowboard retailers association (2009) reported just over six million participated in the sport of snowboarding in 2009 which was up from five million people in 2007. As the sport has grown and gained popularity, snowboarding has become integrated into mainstream sports and is enjoyed by both men and women (although predominantly men) who are both single or married, (National ski area association, 2009), have household incomes of over \$50,000 per year, (National ski & snowboard retailers association, 2009) and are predominantly Caucasian (Heino, 2000; National ski area association, 2009).

Young men and women have perceived snowboarding as a sport that places less emphasis on physical strength and more on individual skill and courage (Thorpe, 2005; Young, 2004). In opposition to traditional sports, this different focus makes it more appealing for females to participate. Females have been shown to participate in snowboarding particularly for its physical benefits, the challenge it presents (Young, 2004) and the opportunity to develop their individual skills while experiencing camaraderie with other women (Thorpe, 2005).

The number of female participants in the sport of snowboarding has grown rapidly since the sport's introduction in the late 1970s (Thorpe, 2005). Although the number of female participants was relatively few at first, the National Ski Area Association reports the number of women snowboarding participants has varied between 23 and 34 percent from 2000-2009 (National ski area association, 2009). These statistics illustrate that women are a significant portion of snowboarding's participants and are a segment of the sport industry that deserves attention.

Capitalizing on the increased number of female participants, companies have begun to focus specifically on this market segment. Market Research.com reports women's athletic apparel was a market currently estimated at \$23 billion in 2001 (The US market for women's athletic apparel, 2001). According to statistics from the National Sporting Goods Manufacturing Association, sport apparel purchases averaged about \$12 billion in 2004 (Tran, 2005). Even though there is a discrepancy in numbers, the size of the women's sport apparel market is significant and makes this segment of the population important to consider in research. Rinehart (2005) supports the idea of market growth when he states that "aligning themselves with sport in addition to *lifestyle* has opened up a whole new market for business ventures and entrepreneurs" (p.239).

Not specific just to women's sport apparel, there has been a growing number of consumers who have become aware of human environmental impacts and have made an effort to act in environmentally friendly ways, purchase environmentally friendly products or consider social responsibility when purchasing a consumer good (Chung, 2006; Eco-fashion, 2008; Fletcher, 2006; Laroche, Bergeron, & Barbaro-Forleo, 2001; Scaturro, 2008; Sewekow, 1996; Sule & Bardhan, 2001; Vartan, 2008). Studies have

shown an increasing number of women are purchasing environmentally responsible goods (Laroche, et al., 2001) and this combined with a growing sport apparel market, has created a niche for environmentally friendly, sport apparel designs for women.

Purpose

Based on the significant number of women snowboarding participants, the increasing proportion of women in the consumer marketplace looking for female specific sport apparel, and women's willingness to pay more for environmentally friendly goods; the objectives of this research were to determine women's attitudes towards different snowboarding garment elements.

Functional, expressive, aesthetic, and environmental features of snowboarding specific sport apparel were addressed and the researcher created two prototype jacket and two pairs of prototype pants to meet the said needs of the women participants. Factors of function, expression, and aesthetics have been shown to influence what a woman will find important and desirable in sport specific clothing (Cassleman-Dickson & Damhorst, 1993a, 1993b; Dickson & Pollack, 2000) so this study used Lamb & Kallal's (1992) Functional Expressive Aesthetic (FEA) Consumer Needs Model. This model provided a framework for designing the snowboarding garments that concentrated on the functional, expressive, and aesthetic needs in a garment design. The model was originally created to address clothing design for individuals with special needs and was adapted for this study to take into consideration a snowboarder's specific needs such as wind and waterproofing, good mobility, and warmth. For this study, identifying the most appropriate combination of the FEA elements helped the researcher develop products that appealed to female snowboarders. If manufacturers and retailers want to tap into the

growing market segment of environmentally friendly women athletes, they must provide specific clothing products that address the full spectrum of a woman's needs.

When females have the appropriate clothing, it has been suggested they may be able to perform better (Bye & Hakala, 2005; Cassleman-Dickson & Damhorst, 1993b; Chae, Black, & Heimeyer, 2006), which in turn may make the participant more pleased with the sport. According to the National Ski Area Association 2008/2009 survey, it was found that the skiing and snowboarding industry is, "fairly effective at inducing first time trial of snowsports among females but it is less effective in converting females into accomplished, frequent participants" (National ski area association, 2009. p.1). There is a potential segment of women snowboarders new to the sport and unhappy with aspects of their experience. This research hopes to identify if the right garment elements can potentially make that experience more enjoyable.

Since women's attitudes towards snowboard clothing have not been researched, it is not evident whether their needs are currently being met, and thus are the focus of this study. The researcher will test the existing model to seek the validity of incorporating an environmental garment element as a fourth criterion for women snowboarder's needs. The researcher will also seek to address the growing concern among women for environmentally friendly consumer goods, specifically within sport apparel.

Research Questions

In this study, the following research questions were addressed:

1. What are the most important functional garment elements a female snowboarding participant desires in female specific sport apparel?

2. What are the most important expressive garment elements a female snowboarding participant desires in female specific sport apparel?
3. What are the most important aesthetic garment elements a female snowboarding participant desire in female specific sport apparel?
4. What environmental elements impact female snowboarding participant's sport apparel choices?
5. Is the inclusion of an environmental garment element to the original Lamb & Kallal (1992) Functional Expressive Aesthetic (FEA) Consumer Needs model applicable? If the inclusion of an environmental garment element is applicable, where is it best located on the model in relation to the other elements?

Objectives

The study's method began with an initial interview and survey, the researcher then created prototype garments, and finally the research participants were asked to complete a prototype evaluation survey. Based on this study's research questions, the objectives of this study were as follows:

1. Collect information on women's opinions regarding women's snowboarding clothing in hopes of better understanding the woman consumer's choices and her specific needs and desires from clothing.
2. Develop a comprehensive overview of what women desire from their snowboarding specific clothing in order to turn these opinions into a final prototype garment.
3. Identify the functional, expressive, aesthetic, and environmental garment elements women snowboarders desire from their snowboarding specific clothing.

4. Develop four prototype garments, two jackets and two pairs of pants that incorporate the functional, expressive, aesthetic, and environmental garment elements determined by female snowboarders.
5. Evaluate the functional, expressive, aesthetic, and environmental garment elements of the four prototype garments based on participant feedback.
6. Provide further research and insight into consumer clothing preferences and design by applying the FEA consumer needs model proposed by Lamb and Kallal (1992).

Assumptions

The following assumptions were made in regards to the study:

1. That women's snowboarding clothing is currently not fully meeting the needs of consumers because of the lack of focus on environmentally friendly qualities.
2. That women snowboarders, although not a completely homogeneous group will identify similar features they like and dislike in their snowboarding specific clothing.

Scope and Limitations

The following scope and limitations were identified for this project:

1. Subjects for the study were limited to females who snowboard in Colorado.
2. To develop a truly environmentally friendly garment, the researcher would need to begin the design process with all environmentally friendly raw materials and processes. Due to monetary and time limitations, this study used raw materials currently available to mainstream consumers and producers of apparel.

3. The researcher is a female snowboarder which brought both credibility and bias to the study.
4. A poor economy may lead to biased participant responses for any question or statement regarding price.

Definitions

The following terms were used in the study:

Aesthetic garment elements	Elements that “use line, form, color, texture, and pattern to create a pleasing design” (Lamb & Kallal, 1992, p. 43) or elements that refer to “the overall shape of an object including color, line, design, texture” (Morganosky & Postlewait, 1989, p. 11).
Environmental garment elements	Elements that influence the product’s “impact on the environment” such as raw materials, garment detailing or production processes (Casadesus-Masanell, Crooke, Reinhardt, & Vasishth, 2009, p. 208).
Environmental concern	“A general attitude toward preserving the environment” (Minton & Rose, 1997, p. 38).
Expressive garment elements	Elements that “relate to the communicative, symbolic aspects of dress” (Lamb & Kallal, 1992, p. 43), convey particular messages or identities about wearer, (Dickson & Pollack, 2000; Edensor & Richards, 2007) or “illustrates for the perceiver

	some idea or concept that is not enunciated in words” (Morganosky & Postlewait, 1989 p.11).
FEA Consumer Needs Model	The model presented by Lamb and Kallal (1992) can be used for “assessing user needs and wants and incorporating functional, expressive, and aesthetic (FEA) considerations” (p. 43).
Functional clothing	Clothing that serves the need to provide individuals with a specific utility such as warmth, comfort, and durability (Cass, 2001), protection from “adversities and threats” (Man & Swan, 2007, p. 13) or improve efficiency and performance (Choi & Ashdown, 2002).
Functional garment elements	Elements that offer protection, mobility comfort, safety and fit (Bye & Hakala, 2005) or “relate to utility” (Lamb & Kallal,1992 p. 43).
Social responsibility	“An <i>orientation</i> 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 <i>philosophy</i> 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).

Socially responsible consumer

“One who purchases products and services perceived to have a positive (or less negative) influence on the environment or who patronizes businesses that attempt to effect related positive social change” (Roberts, 1993, p. 140).

Sports apparel

“clothing designed for, or that which can be used in active sports” (Fowler, 1999, p 81).

Chapter Two

Review of Literature

Environmental consumers

Environmental concern can be traced back to antebellum communities when some individuals were concerned with wasteful societal views surrounding the consumption of natural resources (Stoll, 2002). More prominent, however was concern for the environment that heightened and was most observable in the late 1970s (Roberts, 1996; Roberts & Bacon, 1997). Today, whether watching television, shopping at the local grocery store, or reading the daily newspaper one is likely to come across mention of environmental consciousness, recycling, green products, or concern about pollution and global warming. Even though individuals have long been aware of human impact on the environment, this does not always mean they have acted in ways that mirror their awareness (Garner-Stead & Stead, 2000; Laroche, et al.; Roberts & Bacon, 1997; Stoll, 2002). Laroche, et al. (2001) reported that just because someone participates in a behavior that is considered environmentally friendly, it does not mean they will purchase environmentally friendly goods in the marketplace. In their article proposing a sustainably oriented theoretical framework for business management, Garner-Stead and Stead (2000) found similar results when they described some consumers who “will go to great lengths to pay significantly more money for ecologically sensitive products, while others will be ecologically sensitive in their buying patterns only when it is convenient and competitively priced for them to do so” (p. 322).

Fishbein and Ajzen's theory of reasoned action as presented by Lutz (1991) said, to determine one's behavior it is necessary to look at the attitude toward performing the behavior rather than one's attitude toward the behavior itself. Being able to better identify the attitudes of environmentally friendly consumers towards environmentally friendly behaviors will help companies effectively position their product into the right market targeted to the right people (Roberts, 1996; Welsch & Kuhling, 2009). Getting consumers to purchase environmentally friendly products holds benefit not only for the marketer and consumer, but for the planet as well. When discussing their business strategy that emphasizes sustainability, Garner-Stead and Stead (2000) argued that Earth is the "ultimate stakeholder" (p.321) and should be at the center of consideration when conducting business. Considering also that a 2006 study on the United Kingdom textile industry reported that the average UK consumer sends "30 kg of clothing and textiles per capita to landfill each year," (Alwood, Laursen, Maldivo de Rodriguez & Bocken, p. 2), the Earth is not only a stakeholder but also the ultimate consumer.

Some researchers have studied environmentally friendly consumers by attempting to identify the consumer's behaviors, psychographics and demographics (Balderjahn, 1988; Cassadesus-Masanell, 2009; Roberts, 1996). However, there is inconclusive evidence on which type of data is actually successful at profiling the environmentally conscious consumer (Balderjahn, 1988; Roberts, 1996). According to Roberts (1996), he found that only eight percent of socially responsible consumer behavior could be categorized according to age, gender, or income level. This means 92 percent of the sample's behavior is unexplained and may be influenced by things such as price, quality, or convenience.

In an early study of socially conscious consumers, Anderson and Cunningham (1972) reported that participants in the high socially responsible group had higher occupational success, higher socioeconomic status, and were younger. Although these demographic variables were found to have strong correlations to the high socially responsible group, sociopsychological factors such as “dogmatism, conservatism, status, consciousness, and cosmopolitanism” had stronger correlations (p. 27). Thomas, Kinnear and Ahmed (1974) also looked at factors that would predict ecological concern and found that demographic characteristics did not influence an individual’s ecological concern, but personality values such as tolerance, understanding, and harm avoidance were better predictors of one’s concern. Balderjahn (1988) looked at five variables: demographics, socioeconomics, cultural, personality, and attitudinal values to predict ecologically responsible consumption patterns of home insulation goods, and reported that “demographic, socioeconomic, and cultural variables remain without any effect” (p. 55).

Robert’s (1996) study claimed that in terms of environmentally friendly products, “people in the United States do not actually buy the products they claim to prefer” (p. 80) and demographics have not proven to be effective in identifying socially responsible consumer behavior. He reported that the factors of “price, quality, and convenience” are still most important to consumers buying behavior (p. 83). A suggestion made by Roberts (1996) is that for each socially responsible behavior, there is a distinct set of identifying characteristics. The individuals who perform one set of socially responsible behaviors such as recycling may not have the same characteristics as one who purchases organic goods.

In their exploratory study of environmentally friendly consumer behavior, Minton and Rose (1997) found that personal norm or a feeling of moral obligation was the highest predictor of environmentally friendly consumer behavior. They also reported that attitude toward the environment was a strong predictor of one's behavior. Feeling that previous research did not show a consistent link between attitudes and behaviors, Roberts and Bacon (1997) used a scale called the New Environmental Paradigm that measures attitudes about one's environmental concern. They found that individuals who "feel man must live in balance with nature" and "attempt to make ecologically correct decisions about the products they buy" (p. 86) are the consumers who adopt an attitude of environmental concern. They reported these consumers are also the ones willing to make efforts to change their behaviors to be environmentally friendly. More recently, in an attempt to classify pro-environmental consumption, Welsch & Kuhling (2009) found that the price of environmentally friendly goods, a consumer's knowledge about the goods, and reference persons in the respondent's life were the most important factors related to green energy consumption behaviors. Overall, the data attempting to predict environmentally friendly consumption behaviors or profile the environmentally friendly consumer have been mixed and, at times conflicting.

Women environmental consumers. Some studies have shown that women are more environmentally concerned than men (Balderjahn, 1988; Laroche, et al., 2001; Roberts, 1993, 1996). In Balderjahn's (1988) study of energy saving home insulation efforts, he found that "a positive attitude towards environmentally conscious living leads to a more intensive use of nonpolluting products among men but not among women" (p. 55). Interestingly, a study focused on profiling a consumer willing to pay more for

environmentally friendly products showed females are more likely to do so than men (Laroche, et al., 2001). Considering Balderjahn's research was focused on home insulation, which may be a costly home modification; it is difficult to compare to the purchase of more everyday environmentally friendly goods.

Roberts' (1993) study focused on gender differences in socially responsible consumers' behavior and found women scored higher on the socially responsible consumer behavior scale leading him to conclude that, "women consider the influence of their decisions on others more often than men" (p. 145). It is important to consider that the reason females may exhibit a higher rate of environmentally friendly goods purchase could be because they are still the ones doing the majority of the household shopping (Roberts, 1996) or because they are traditionally more nurturing. Overall, the study results show that more information is needed.

Apparel industry impact. There is a growing awareness in the fashion industry and the consumer marketplace to become more environmentally and ecologically conscious (Laroche, et al., 2001; Thomas, 2008). This increased environmental awareness has led to the development of new terms such as *ecofashion* (Thomas, 2008) and *ecochic* (Fletcher, 2006). This awareness has spawned other studies that have attempted to profile and understand environmentally friendly consumers and behaviors specifically within the apparel and textiles field.

Dickson & Eckman (2006) surveyed members of the International Textile and Apparel Association to find a working definition of social responsibility that can be used by apparel and textile businesses. They found three defining concepts from the survey responses, "an orientation encompassing the environment, its people, the apparel/textile

products made and consumed, and the systematic impact that production, marketing and consumption ... has on multiple stakeholders and the environment,” “a philosophy that balances ethics/morals with profitability” and, “a desire for outcomes that positively affect, or do very little harm to, the world and its people” (p. 188). The participants of the study offered their own personal definitions of social responsibility and 55 percent of them mentioned an orientation towards the environment, 59 percent mentioned people, and 32 percent mentioned the need for a focus on all parts of the apparel/textile business (Dickson & Eckman, 2006). Although mention of the environment was only second on their list of respondent orientations, it shows that a considerable number of scholars do consider the environment an important focus of consideration in the industry.

Clothing for outdoor winter sports, such as skiing and snowboarding, has historically been environmentally unfriendly due to its dependence on raw materials derived from non- renewable sources (Fletcher, 2006), the need for formaldehyde based dyes (Shenai, 2001) and the use of harmful waterproof finishes (Snowrev.com, 2008). Finding alternatives to traditional polyester and nylon, and compounds used as dyeing or waterproofing agents, may be helpful in decreasing pollution or preventing the degradation of the very landscape used for outdoor recreation such as skiing and snowboarding. As more companies continue to add an environmentally friendly garment to their seasonal lines, two snowboard clothing companies in particular have stood out: Patagonia and Bond Snowboarding.

Patagonia is a company who has consistently made changes to their entire production and business strategy to become more environmentally friendly. For the past twelve years, the company has incorporated organic fibers into their seasonal lines

(Spear, 2008). The company now uses all organic cotton, buys recycled fleece, and provides a clothing recycling program (Casadesus-Masanell, et al., 2009). One more significant business practice Patagonia adopts is producing only two lines of clothing per year as opposed to the five that is often standard in the industry (Casadesus-Masanell, et al., 2009). This aims at using fewer resources during production and producing less waste.

Bond is a snowboarding specific clothing manufacturer also committed to sustainable business practice and products. Their jackets are made of a blend of recycled and recyclable polyester; they utilize waste from other industries to manufacture their buttons and zipper pulls, and all jackets come equipped with a “waste management pocket.” This pocket is lined with water resistant fabric so snowboarders can put trash or messy wrappers in the pocket and it will not make a mess (Bond Snowboarding, 2009).

Functional Apparel

Elderly individuals, soldiers, firefighters, dancers, and farmers are just a few examples of the many individuals who need clothing that will aid in or allow them to perform certain tasks, protect them from certain hazards on the job, or both (Choi, 2002; Kidd, 2006; Man & Swan, 2007; Mitchka, Black, Heitmeyer, & Cloud, 2009; Rosenblad-Wallin, 1985). Clothing that serves the need to provide individuals with a specific utility such as warmth, comfort, and durability (Cass, 2001), protect from “adversities and threats,” (Man & Swan, 2007, p. 13) or improves efficiency and performance (Choi & Ashdown, 2002) is considered functional clothing. In creating a mathematical framework for analyzing functional clothing, Man and Swan (2007) explained there are often “tradeoffs between protection from adversities” and “maintained human

performance” (p. 13). In their study, they discussed the need for functional clothing to bend with the wearer comfortably, and withstand collision, friction, or contact with other elements including the clothing itself (Man & Swan, 2007).

Rosenblad-Wallin (1985) studied functional clothing design specific to the end user and focused on work clothes, clothing used in the military, and clothing for elderly individuals. For industrial work clothes, participants noted their work environment as having a high injury risk, being polluted, very warm, and the workers were engaged in a high level of physical activity. Most often, mobility and protection were ranked with highest importance (Rosenblad-Wallin, 1985). Military workers also needed the best possible protection but these features also had to be balanced with cost, comfort, and performance. When the study looked at the needs for elderly individuals, the respondents did not need as much physical protection but comfort was the feature desired most from clothing. The fabric hand and the ease of donning and doffing were also important considerations in the comfort of a garment for the elderly. Clothing for elderly individuals should not require fine motor skills such as small snaps and buttons, should stretch to fit over the head and feet, should not rub, press or fit tightly, and “dressing and undressing must not demand any force or dexterity” (Rosenblad-Wallin, 1985, p. 284).

Athletes are another group of people who have particular needs from their sport specific apparel. These needs include thermal control, (Bye & Hakala, 2005; Vokac, Kopke & Keul, 1972) performance enhancement, (Casselmann-Dickson & Damhorst, 1993b), and protection (Young, 2004). Vokac, et al. (1972) studied comfort of men wearing Scandinavian ski dress, and found that although protection from a cold climate is important for clothing used in outdoor activity, “the protective value is very seldom a

matter of survival to a common user, the subjective sensation of clothing gains importance” (p. 125) suggesting that although the user needs protection from environmental elements, the comfort of that garment is still of top importance. Garment comfort for male cross-country skiers was often related to thermal control or lack thereof. It was found that although the act of perspiring due to physical effort was often uncomfortable to the skier, it was mainly the accumulation of perspiration in an athlete’s clothing that was most uncomfortable (Vokac et al., 1972). Man and Swan reminded their readers of the importance of clothing’s ability to either aid in or permit heat transfer away from the body since, “the wearer can suffer heat-induced fatigue or stroke” (p.13).

Performance enhancing garment characteristics will vary depending on the sport (Dickson & Pollack, 2000; Mitchka et al., 2009), but many athletes reported wanting garments that would not hinder their performance by becoming a distraction (Bye & Hakala, 2005). Clothing distraction was described by women sailors as something that affected mobility (Bye & Hakala, 2005). The need to reduce distraction was echoed in other studies as clothing that was big and bulky (Wheat and Dickson, 1999) or did not provide adequate support and coverage (Mitchka et al., 2009). Cassleman-Dickson and Damhorst (1993a) found clothing that was, “aerodynamically efficient” aided in performance enhancement for female cyclists (p. 14). Wheat and Dickson (1999) also supported the importance of garments that enhance performance when they stated, “if players are satisfied with comfort and performance, and their appearance, they may perform better” (p. 9).

Protection is another specific need for athletes. Women bicyclists reported needing protection from the “pressure points caused by the athlete’s contact to the bicycle

(Casselmann-Dickson & Damhorst, 1993a). For women sailors, protection is needed not only from external elements such as wind and water, but also if she goes overboard. The brightly colored garments can aid in rescue visibility (Bye & Hakala, 2005). Like sailors, the protective functions of clothing for individuals taking part in outdoor winter recreation also become important for protection against elements such as moisture or wind (Vokac et al., 1972).

Women's sport apparel. Many previous works of women's functional apparel are based on women's apparel. This could be due to the increasing number of women who participate in sports, fitness activities or outdoor activities (Fowler, 1999). Due to the 1972 Title IX legislation, it is stated that "no person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any educational program or activity receiving federal financial assistance" (Cheslock & Eckes, 2008, p. 31). This report looked at the compliance and statistical evidence of federally funded athletic programs in the United States and claimed that, "although institutions did move closer to substantial proportionality in the 1990s, this progress has slowed considerably in recent years" (Cheslock & Eckes, 2008, p. 43).

Although the sports in which the Title IX legislation applies are considered mainstream sport and thus do not regulate or measure the involvement of women in sports such as snowboarding, there appears to be at least some significance of the legislation in noted increases in female athletes (Cheslock & Eckes, 2008; Laurendeau & Sharara, 2008).

Previous studies of women's sport apparel have focused on the sports of in-line skating, bicycling, sailing, tennis, dance, and golf and have all reported that fit and

comfort are the most important elements of a sport apparel garment (Anderson & Cunningham, 1972; Beard, 2008; Chung, 2006; Kinnear, et al, 1974; Laroche, et al, 2001; Minton & Rose, 1997; Mitchka, et al., 2009; Scaturro, 2008). Fit and comfort were found to be the most significant factors in a woman's reported satisfaction or dissatisfaction with a sport apparel garment. Proper fit was found extremely important for peak physical performance for inline skaters and female bicyclists (Dickson & Pollack, 2000; Casselman-Dickson and Damhorst, 1993a) and fit and size were rated most important with college dance students (Mitchka et al., 2009). LaBat and DeLong (1990) reported that, "physical comfort, psychological comfort and appearance all play a part in the consumer's perceived satisfaction with fit" (p 44). Fowler (1999) posited that fit is of more importance to women because sport apparel is traditionally made for a male figure and finding clothing that will fit a more slender silhouette, thin waists or larger hips and has, until recently, been much harder to find.

Women's snowboarding clothing. When snowboarding was first increasing in popularity, the small percentage of women participants were clothed in the same garb as the males; oversized, baggy, and dark colored clothes (Heino, 2000). Since female participation in snowboarding came after its male introduction, women adopted many of the same clothing styles as the men (Thorpe, 2005). This unisex style included jackets and pants that were worn lacked gender definition and figure accentuation, and a female's hair was sometimes the only way to tell the men from the women (Heino, 2000). While the similarities in dress were reported to, on one hand help blur the gender definition lines, it was stated that this also leads to a lack of female distinction which has long been either important or inherent to female clothing (Heino, 2000).

Popularity of the sport has since increased and it has been considered by some as a lifestyle sport, which is identified as one that emphasizes the participant's appearance and form (Edensor & Richards, 2007). Women's clothing has since evolved to be just as technical as the men's clothing, but it has also taken on more feminine shapes and colors (Outfitted, 2008) to better conform to the evolving needs of women. Women's needs in snowboard clothing are the same as men's in terms of their performance. Protection from precipitation and wind as well as heat insulation and thermal are essential traits for any clothing being used for outdoor activities (Yoo & Kim, 2008).

For snowboarding, clothing needs may be considered similar to those needed for women sailors. Due to the similarities in the high level of physical activity in cold, windy conditions, these sports have many of the same needs for moisture barrier, thermal insulation/control, and protection from the wind. Young (2004) suggested women's clothing serves to protect them since snowboarders wear many layers of outdoor clothing that cover most of the body. The clothing is seen to offer both cushion from falling and security from any abrasions or serious injury.

Heino (2000) stated that, "the right clothing is essential in the snowboarding subculture" (p. 179) hinting to the fact that the functional needs of a garment are not the only ones that need to be considered. She supported this idea when she stated that, "style incorporates the symbolic representations of the subculture" (Heino, 2000, p. 178). Women's clothing and their identities are very much intertwined and it has been reported that a "woman's identity is bound up with clothing use" (Guy & Banim, 2000). This speaks to the important role clothing plays in the lives of women and why it is an important focus of study.

Snowboarding

Snowboarding has been compared to surfing and skateboarding subcultures because of the way the participant is positioned sideways on a single board (Heino, 2000). It has also been compared to the “Gangsta” (Anderson, 1999) and “Punk” subcultures (Heino, 2000) because of the similarities in identity expression and defiant attitudes towards mainstream society. Wheaton (2007) described a subculture by stating, “implicit in using the label subculture is that a relationship of difference exists between the subculture and the mainstream culture to which most, if not all members of that society belong” (p. 286). Sports that emphasize an opposition to mainstream sport such as football or basketball, are often referred to as extreme sports (Wheaton, 2007) action sports, (Laurendeau & Sharara, 2008; Rinehart, 2005) lifestyle sports, (Edensor & Richards, 2007; Wheaton, 2007) or alternative sport subcultures (Donnelly, 2006; Heino, 2000). These sport subcultures, specifically snowboarding, are similar not only in their defiance and rejection of mainstream language and clothing style (Brayton, 2005; Heino, 2000) but in their values, consumption patterns, and more importantly, leisure activities (Donnelly, 2006).

Snowboarding has been described as a sport in which participation is based on a desire for pure enjoyment (Humphreys, 1997) and lauded for its emphasis on individual expression (Edensor & Richards, 2007). The sport did not start as one that was dependent on tangible institutions (like schools in an education system) for funding or support (Anderson, 1999; Rinehart, 2005) and this has allowed it to develop non-traditional values and approaches to participation. In their study of the action sports of snowboarding and skydiving, Laurendeau and Sharara (2008) echoed previous studies

when they stated that action sports are, “ripe for the construction of more progressive gender relations” (p. 24). Sisjord (2009) wrote that in previous studies, alternative sports are defined as emphasizing “anti-competition, cooperation, and self expression” (p. 1300). However, more recently snowboarding has begun to move into mainstream sport. The popularity of Olympic celebrities like Shaun White and Hannah Teeter are drawing attention and popularity to the sport. This growth and integration into mainstream society has led snowboarding to ultimately become less of an alternative subculture, and one that is more commercial (Heino, 2000; Sisjord, 2009).

Impact on environment. The popularization and commercialization of snowboarding has caused impacts that reach further than that of discussions of whether the sport is mainstream or still alternative. Snowsports including snowboarding cause impacts on the environment in many ways. From the plane or car ride to the ski area to heated lodging and electric powered lifts to runs packed with manmade snow, the effects of tourism are more far reaching than one may consider upon first thought (Chesshyre, 2005). Ski areas, “operate within and are dependent on, natural systems” (Sustainable slopes, 2005) meaning that the hydrological and ecological impacts of the ski area’s operations will affect the environment both within and outside the ski area boundary. Snowmaking, a ski area operation that consumes a great deal of water and energy is significant because adequate snow conditions are very important to the recreation experience (Englin & Moeltner, 2004).

Scott, McBoyle, Minogue, and Mills (2006) reported that since ski areas are highly dependent on the weather, many of them are vulnerable to undesirable climate change by 2020. This means that if winter sports participants want to have a playground

in the future, they will need to become more conscious of their purchase decisions now. A recent article suggested that Park City, a ski area in Utah, “will have no snowpack at its base by 2100 and winter precipitation will come down in the form of rain” (p. 15) unless global carbon dioxide emissions are decreased over time (Big changes, 2009). These statistics suggested a need for more environmental consideration and operations reforms among ski area industries. Although some ski areas are making efforts to use solar and wind energies, optimize the efficiency of their snowmaking systems and reduce the overall waste produced, efforts will need to be industry-wide and worldwide as the current carbon dioxide emissions levels (overall, not just from the ski area industry) have reached a higher level than scientists previously predicted (Big changes, 2009).

Theoretical Framework

FEA Consumer Needs Model

The theoretical framework adopted for this study was Lamb and Kallal’s (1992) “Conceptual Framework for Apparel Design”, the FEA Consumer Needs Model (p. 42). The model was created as an apparel design framework that takes into consideration the garment requirements of individuals with special needs, but has been used as a model for any apparel design. The creators of the model assume the target consumer is influenced by the present culture and this will in turn affect how the consumer rates the importance of each functional, expressive, and aesthetic garment elements. Lamb and Kallal (1992) suggested all three elements should be taken into consideration during the design phase of a garment when a consumer’s wants and needs can be addressed through innovative or novel design.

The concentric circle model is grouped into three separate layers or parts. The innermost layer and center of the model is the target consumer. This component was placed in the center since the consumer is for whom a garment is created. Elements like “demographics, psychographics, physical characteristics, activities, and preferences” (p. 42) are incorporated into this section in order to better identify the target consumer. Lamb and Kallal (1992) reminded the reader that the consumer’s needs must be analyzed and identified before a design process can even begin. Bye and Hakala (2005) also supported the idea that a designer should first understand a user’s needs, and then translate those desires into a final design.

The second part, or layer of the model is the culture ring. The authors proposed this layer of the model by reasoning, “culture acts as a mediator or filter between the intended users of apparel and their requirements or desires in their apparel items” (Lamb & Kallal, 1992, p.43). Bye & Hakala (2005) ascertained that competitive women sailors found tradition an important aesthetic component of their clothing while Cassleman-Dickson and Damhorst, (1993b) found that the portrayal of one’s skill level in clothing important for female bicyclist’s. Both sports have ideas of what garments or garment elements are considered appropriate within the individual sports. Wheat and Dickson (1999) supported this idea by stating, “an individual’s behavior within a role is often shaped by social norms” (p.8). Women in both sports therefore take this ideal of appropriateness created by the sport, into consideration when evaluating the attributes of sport apparel.

Considered together are the two outermost layers on the model. These layers name and give examples of each of the FEA elements. The outermost ring also has

arrows to indicate the interrelation between the functional, expressive, and aesthetic sections. Although the garment elements will be described individually, they are not, “mutually exclusive” (Lamb & Kallal, p. 43). In fact, in almost every study looking at female sport specific apparel, women were noted as wanting clothing that fulfilled functional needs but also appealed to them aesthetically and expressively (Bye & Hakala, 2005; Cassleman-Dickson & Damhorst, 1993a, 1993b; Dickson & Pollack, 2000; Fowler, 1999; Mitchka et al., 2009; Wheat & Dickson, 1999). Fowler (1999) found that female consumers specifically, “linked comfort to fashion” (p. 83) further supporting the idea that function, expression, and aesthetics garment elements are interrelated.

Bye & Hakala’s (2005) study on women’s sailing apparel integrated the FEA model in their analysis. Participants in their study were observed and interviewed to get more in-depth responses than would be available through a survey method. From the interview feedback, the authors developed a final prototype garment that combined specific needs or desires pertaining to the three FEA elements. Other studies of women’s sport apparel focusing on female bicyclists, in-line skaters, tennis players, and collegiate golfers (Cassleman-Dickson & Damhorst, 1993; Chae, Black, & Heimeyer, 2006; Dickson & Pollack, 2000; Wheat & Dickson, 1999) have all mentioned one or more of the FEA elements, but no studies other than Bye & Hakala’s (2005) have used all three together to design a female specific garment based on actual participant feedback.

In her dissertation, Chae used the FEA model to help guide her study on women’s snowboarding helmets (Chae, 2006). She was interested in the use of helmets by snowboarders and how the FEA model, adapted to be the FEAR model which takes into

consideration the regulatory needs of women snowboarders. The regulatory needs included things like laws or education regarding helmets.

Functional elements. Functional garment elements refer to those that provide protection, aid in mobility, or provide comfort and fit (Bye & Hakala, 2005; Lamb & Kallal, 1992). Functional capabilities within a sport apparel garment have been found to be of most importance in previous studies with women athletes. Women snowboarders should be no exception. Women snowboarders in particular will have specific functional elements they desire from their clothing that are different from other sports and even from males within the sport. Women are often colder than men and will perspire in different areas leading to clothing needs that are different from those of males (Weede, 1997).

For clothing that will sit close to the skin, women specifically seek fabrics that have moisture wicking and anti-chaffing properties. For their sportswear in general, they reported needing clothing that was smaller in the torso and waist and larger in the hips and thighs (Fowler, 1999). Functional garment elements are not important only in athletic clothing. In fact, even in fashion clothing, wearers still desire functionality from their clothing (Cass, 2001). Lamb (2001) reminded her readers that functional clothing was not pleasing if it “neglected aesthetics or personal expression” (p. 137).

Expressive elements. Expressive garment elements were defined above as elements that, “relate to the communicative, symbolic aspects of dress” (Lamb & Kallal, 1992, p. 43), convey particular messages or identities about wearer (Dickson & Pollack, 2000; Edensor & Richards, 2007) or, “illustrate for the perceiver some idea or concept that is not enunciated in words” (Morganosky & Postlewait, 1989 p.11). In sports, “a

female athlete may use clothing and appearance to carry out her athletic role, style preferences, or level of expertise” (Chae, Black, & Heimeyer, 2006, p. 29). Guy and Banim (2000) stated that, “clothing use is part of the ongoing process of self-realization which reveals both unique and socially shared meanings” (p. 314). This lends itself to the idea that a woman’s identity is developed through the use of clothing and could apply to women snowboarders as well.

The desire for a feminine appearance in sport apparel is important for helping a woman express her identity as a woman and her role as a participant of the sport (Bye & Hakala, 2005; Dickson & Pollack, 2000; Wheat & Dickson, 1999). Dickson and Pollack (2000) summed up this idea when they said, “the conflict between expressing femininity and enhancing athletic ability has haunted women for over 100 years” (p.67). Femininity and self esteem in dress were identified by Lamb & Kallal (1992) as components of the expressive element of the model supporting the importance of properly fitting, women’s specific clothing.

Another element often mentioned in studies of women sport apparel is clothing as being representation of skill level within the sport (Cassleman-Dickson & Damhorst, 1993a; Dickson & Pollack, 2000). Edensor and Richards (2007) reported that for snowboarders, “clothes are subordinate to the performance although they are intimately linked to the degree of skill of the wearer” (p. 106) meaning that the degree of skill shown while snowboarding was of first importance, but clothing should be representative of that skill. Since it is assumed that women who snowboard more frequently will have a higher degree of skill, the frequency of participation will be a variable researched in this

study to see how it may affect women's perceptions of the expressive elements of a garment.

Aesthetic elements. As defined above, aesthetic elements are the components of a garment that “use line, form, color, texture, and pattern to create a pleasing design,” (Lamb & Kallal, 1992, p. 43) or refer to, “the overall shape of an object including design and texture,” (Morganosky & Postlewait, 1989, p. 11) considered beautiful by the consumer. Dickson and Pollack (2000) and Casselman-Dickson and Damhorst (1993b) reported the women in their studies found attractiveness, or aesthetics to be an important factor in sport apparel choices for both women golfers and bicyclists. In their study of women sailors, Bye and Hakala(2005) indicated that, “although functional needs were their primary concern, most were also looking for garments that would flatter the body” (p. 51) showing the aesthetic elements of a garment can also refer to the “body/garment relationship” (Lamb & Kallal, p. 42).

In the previous studies of women's sport apparel, it was found that although aesthetic elements are indeed important to the garment, they are of less importance overall than the functional elements of a garment (Bye & Hakala, 2005; Cassleman-Dickson & Damhorst, 1993; Chae, Black, & Heimeyer, 2006; Edensor & Richards, 2007; Wheat & Dickson, 1999). This study will attempt to provide further information about the aesthetics garment features considered desirable in female specific snowboard apparel in relation to the other garment elements.

Addition of an environmental garment element to the FEA Consumer Needs Model. Environmental garment elements refers to those that influence the product's, “impact on the environment” such as raw materials, garment detailing, production

processes, (Casadesus-Masanell, Crooke, Reinhardt, & Vasishth, 2009, p. 208) or transportation (Chen & Burns, 2006). Previous research regarding environmentally conscious consumers has indicated that women are willing to pay more for environmentally friendly products (Laroche, et al., 2001; Roberts, 1993). It would also be a logical conclusion that since the outdoor landscape is the playground for snowboarders, they would have an interest in its environmental preservation.

Fletcher (2006) reminded her readers that, “textiles do not stop generating impact once they have left the field or the factory- how they are used, reused, and eventually discarded has considerable bearing on their overall environmental effect” (p. 32). Vartan’s (2008) article argued that, “everything from convincing farmers to grow organic instead of conventional cotton, changing transportation systems, moving production locally, assessing water treatment, and changing the types of dyes used” are important considerations in the sustainability of the textile industry (p. 34). Evidence has suggested that the fashion and textile sectors are among the most damaging industries to the environment due to the consumption of significant amounts of natural resources and dominant fast fashion ideals that encourage consumers to change out their wardrobe often in order to remain fashionable (Fletcher, 2006). Knowing that much environmental impact can be planned for and controlled during the design phase, it seems logical to take this element into consideration in a design model.

Conclusions from Reviewed Literature

Based on the increased concern for the environment and consumer’s willingness to pay more for environmentally friendly goods, companies that act responsibly toward the environment may be more effective in meeting the needs of their target consumers

(Roberts, 1996). Research (Laroche, et al., 2001) found that consumers who are willing to spend more for green products, “believe that firms do not act responsibly toward the environment” (p. 514) and in fact, “80% said they would refuse to buy products from companies accused of being polluters” (p. 519). Garner-Stead and Stead (2000) argued that, “green consumers want ecological and social responsibility built into the products they buy” (p. 32). These findings further supporting the researcher’s adaption of the original FEA Consumer Needs Model to be the Functional Expressive Aesthetic Environmental (FEAN) Consumer needs model (Lamb & Kallal, 1992).

The fourth environmental garment element (N) was tested for its applicability to the model and to women’s snowboard clothing concerns. The letter N was used to represent the environmental garment element instead of E (which is currently used for Expressive in the FEA model) so each component had a distinct identifying letter.

Determining which of the FEA garment elements are most important, and if an environmental garment element is applicable in the context of female snowboarding apparel, will help designers create garments better suited to the end user’s needs. Sales staff and product marketers may also better position their products in the marketplace for women snowboarders.

Previous research has studied women’s sport apparel, but snowboarding clothing has not been included in these studies. Mitchka et al. (2009) suggested that preferred attributes and satisfaction with task related garments will be different according to the sport and, “assessments must be conducted for each specific type of active apparel” (p. 43) also supporting the researchers use of Lamb and Kallal’s (1992) model to test the

potential inclusion of an environmental element while adding to the existing knowledge of female specific sport apparel.

Currently there are a significant number of women snowboarding participants, an increasing proportion of women in the consumer marketplace looking for female specific sport apparel, (Fowler, 1999) and studies have shown females will pay more for environmental products (Laroche, et al, 2001; Roberts, 1993). Clothing designers also have the option to design garments that are environmentally friendly from the start by choosing elements that are friendly from their origin (Fletcher, 2006). These factors combine to create a niche for apparel designers to create environmentally conscious clothing for female snowboarders who are concerned with the utility, beauty, and uniqueness of their garments.

Chapter Three

Methods and Procedures

Introduction

Both quantitative and qualitative data were collected to allow the researcher to gain an in depth knowledge of what women snowboarders were looking for from their outerwear. The participant's opinions, the availability of materials, and the researcher's design ideas were incorporated into two prototype jackets and two pairs of prototype pants. Images of the prototype garments were then evaluated by the participants in a survey. The following research questions were used to guide this study:

1. What are the most important functional garment elements a female snowboarding participant desires in female specific sport apparel?
2. What are the most important expressive garment elements a female snowboarding participant desires in female specific sport apparel?
3. What are the most important aesthetic garment elements a female snowboarding participant desire in female specific sport apparel?
4. What environmental elements impact female snowboarding participant's sport apparel choices?
5. Is the inclusion of an environmental garment element to the original Lamb & Kallal (1992) Functional Expressive Aesthetic (FEA) Consumer Needs model applicable? If the inclusion of an environmental garment element is applicable, where is it best located on the model in relation to the other elements?

The following model was developed to graphically illustrate the research and design process for this study (see Figure 1).

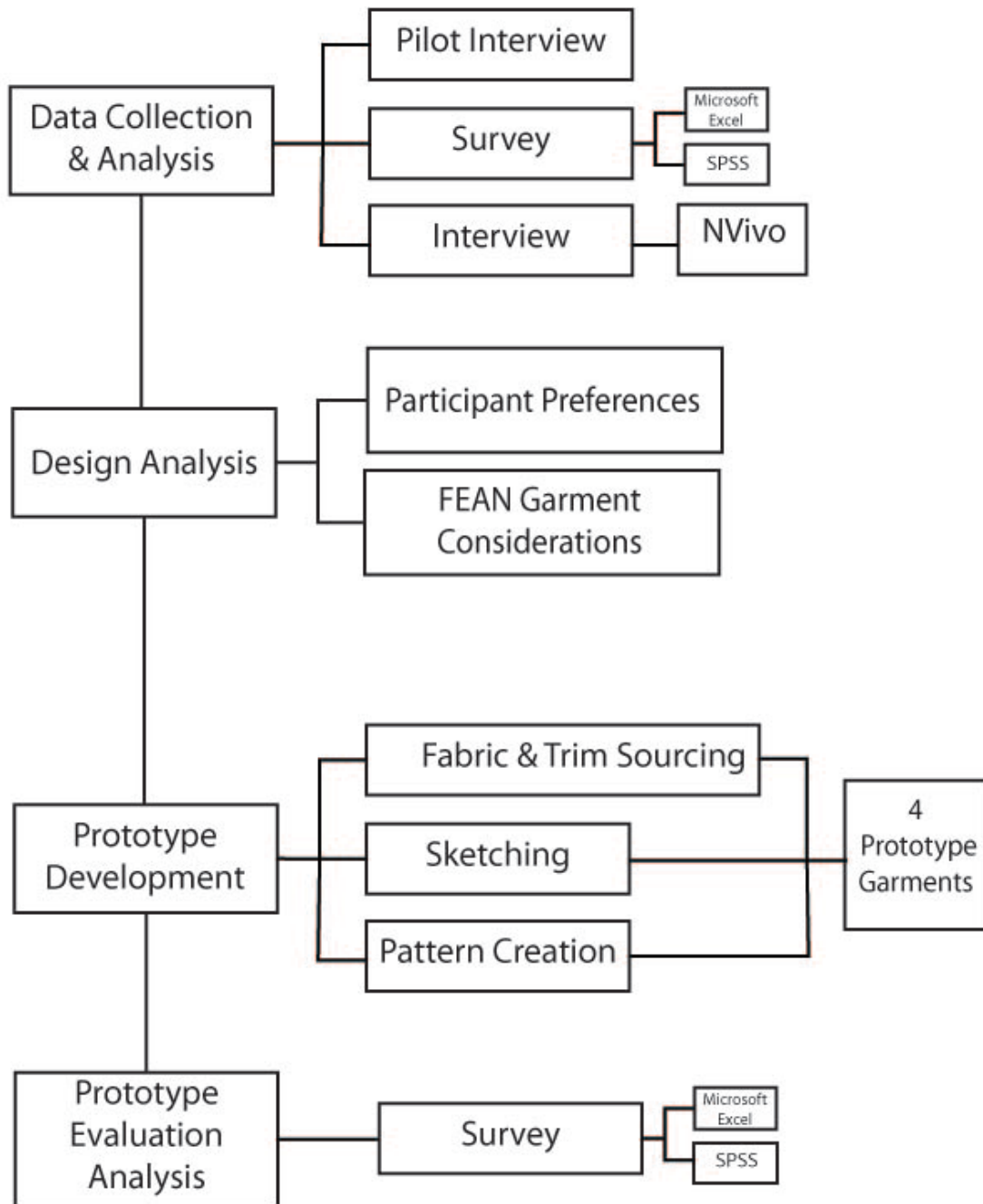


Figure 1. Detailed Design Phase Model

Data Collection

Sample

Upon approval from Colorado State University's Human Subjects Research Committee, the researcher purposefully selected and interviewed fifteen participants including one pilot, for the study. Purposeful selection of participants was used to, "best help the researcher understand the problem and the research question" (Creswell, 2009, p. 178). Participants for the study were selected by snowball method (Creswell, 2009) based on acquaintance or via recommendations from other participants.

Each participant was contacted via phone or email to set up a convenient interview time and to determine if she was within the parameters of the sample. The researcher set the sample parameters as women snowboarders 18 years of age or older who had snowboarded at least once in the past year and had been participating in snowboarding for at least two years. See Appendix A for the initial conversation script. A follow-up email was sent after the phone call to confirm interview details. See Appendix B for the follow up email script.

The mean age of the 15 participants was 28.8 years and ranged from 20 to 42 years old. The majority of the 15 interviewees were from Colorado (n=11), but the sample included one woman who had just moved to Guatemala, one from Michigan, one from Nevada, and one from Wyoming. One of the women from Colorado moved to California to pursue her snowboarding blogging career in the middle of the study and another woman from Colorado is a professional snowboarder. The other end of the spectrum included a woman from Michigan who snowboards most often in the mid-west and a woman who got one last day of snowboarding before moving to Guatemala with

the Peace Corps. It is hoped that with the wide range of interviewees, the researcher was able to collect information that accurately represented a variety of opinions.

The self reported mean ability level was 7.3 on a scale from one (novice) to eight (expert). Women determined their snowboarding ability level based on a scale used by Steamboat Ski & Resort Corporation's ski and snowboard school (Skiing & Snowboarding Ability Levels, 2010). The full level descriptions were included in the survey (Appendix C). The researcher decided that this scale may not be the most accurate measure of a woman's snowboarding experience even though it is used by ski and snowboard professionals. It categorizes snowboarding ability level in reference to lessons at a ski and snowboard resort; however, many of the participants no longer participate in snowboard lessons. Some of the women also mentioned snowboarding in the terrain park or the backcountry; neither of which are addressed in the level descriptions.

Pilot Interview

The researcher conducted one pilot interview to help develop a guide for logical, comfortable conversation and to develop and refine the, "set of questions or interview guide" (Krueger, 2000, p. 12) that were used for the actual interviews. The individual for the pilot interview was purposively selected by the researcher and was a woman snowboarder with at least 5 years of experience snowboarding and an expressed interest in snowboarding clothing. After the pilot interview, the researcher refined the interview questions to be clearer and removed questions that were already asked in the survey.

Survey

At the beginning of each interview the researcher once again explained the purpose of the study and outlined the schedule for the interview. The researcher had the

participant sign the consent form first (Appendix D), then each participant filled out the survey (Appendix C).

The survey lasted no longer than 20 minutes and had three parts. The first part pertained to the participant's age and snowboarding experience. The second part involved women's snowboard clothing use and the importance of specific garment elements. The final section asked for the woman's snowboarding clothing size and to rate her satisfaction with the current clothing selection available. Space was provided in the survey for the participants to include additional comments regarding the importance of specific garment elements and it invited them to elaborate on any other information they wished to share. Since the interview session began with the survey, the participant was able to start thinking about her snowboarding clothing before she was asked any questions. The researcher referred to the survey as a reference during the interview.

Interview

Once the participants had completed the surveys, the researcher started the audio recording and initiated the interview. The interviews lasted between 25 minutes and 2 hours and were held in the researcher's home, the interviewee's home, coffee shops, or via Skype, an online video chat service.

The use of Skype as an interview tool proved to be both beneficial and challenging. Skype interviews were conducted to allow the researcher to obtain opinions from women the researcher would not have been able to interview due to geographical location. With the benefit of being able to reach individuals across the globe came the challenges of unpredictable Internet and computer glitches. Overall, the Skype interviews were just as successful as interviews done in person.

Following the interview schedule, found in Appendix E, the interview began with the participant discussing her likes and dislikes with her current snowboarding outfit or outfits. This often elicited responses that were covered in later questions but it was a way for the women to begin thinking of the details of her clothing. Follow up questions were asked as needed and were meant to probe deeper into some of the responses.

After each woman discussed her likes and dislikes in regards to her own outfit, interview questions focused on the functional, expressive, aesthetic, and environmental garment elements. First, women were asked what they would want from both a snowboarding jacket and pant functionally. The probing questions usually involved finding the importance of waterproof rating, zipper placement, or their opinions on insulation. The expressive garment elements were covered next and included probing questions regarding image, style, trends, and femininity. Then, aesthetic elements were discussed and the women talked about what they were drawn to when looking at or shopping for jackets or pants.

After discussing snowboarding garment elements that were familiar to them, the researcher asked the women about their expectations and ideals of an environmentally friendly snowboarding garment. The interview ended with the researcher asking each woman to give an explanation to the last survey question where she was asked to rate her overall satisfaction with the current selection of women's snowboarding clothing available.

Data Analysis

Survey Data Analysis

The survey data were analyzed using Microsoft Excel and SPSS. Frequencies and descriptive statistics were run on all survey questions. The variables that were analyzed were age, number of years snowboarding, snowboarding level, the importance of particular garment elements, garments size, and satisfaction with the current selection of women's snowboarding clothing. A t-test analysis was done to compare the number of years the women wore their pants and jackets versus how often they purchased the garments. This enabled the researcher to test assumptions purchase and use behaviors.

Interview Data Analysis

After each interview the researcher transcribed each conversation as close to verbatim as possible. The researcher used NVIVO, qualitative data analysis software (Qualitative Data Research Software Products, 2009) to aid with her data organization and analysis. This software was described by Glesne (2006) as a, "code based theory builder" (p. 163) which helps researchers to assign codes to the data, visually make connections between themes and create models and graphs to represent finding.

Constant comparative analysis method was used to analyze the interview data (Locke, Silverman & Wyrick-Spirduso, 2004). Using constant comparative analysis, the researcher coded the data and identified open codes. To achieve validity, a second coder reviewed one interview from the researcher's data during the open coding phase of data analysis and upon open code comparison; a reliability factor of $r=.82$ was achieved. The researcher then categorized the open codes into groups and formed axial codes. The core

categories and axial codes derived from the data analysis informed the researcher about what needed to be included in the prototype creations.

Design Analysis and Specification

Once the survey and interview data had been analyzed, the researcher was able to begin designing the garments. The researcher considered things such as color matching, fabric type, fabric size, and fabric function as well as the functional, expressive, aesthetic, and environmental desires expressed by the participants. Design ideas were sketched and matched with fabrics and trims that would be appropriate. Design features evolved and changed frequently during the design phase.

Prototype Development

Fabric and Trim Sourcing

The researcher wanted to utilize environmentally friendly fabric regardless of interviewee responses, but due to the limited availability and high cost, utilizing all environmentally friendly fabric was not an option. Also, due to the high cost of traditional fabrics that have wind and water repellent properties, a lower cost option was needed in order for completion of this research.

The researcher's internship with Spyder Active Sports, in Boulder, Colorado, prompted the idea of utilizing small yardage of old, unused, damaged, or incorrect fabrics. Both during and after the internship the researcher collected these unwanted or unneeded fabrics from Spyder as they became available.

An email was sent to other different ski and snowboard clothing companies to see if they had small yardages of waterproof or water resistant fabrics they would be willing to donate for the research project. See Appendix F for the email. Out of the nine

companies contacted after Spyder, two more responded with fabric donations: GoLite and Oakley, Inc.

The researcher held a part time position with GoLite, in Boulder, Colorado during the time the data was being collected for this research. This allowed her to collect additional small yardage pieces and trims. GoLite's company website states, "we have developed a wide range of materials that are both High Performance AND Sustainable", and they are focused on making clothing from what they call EPMS or Environmentally Preferred Materials (GoLite, 2011). As the researcher originally desired, much of the fabric was either recycled polyester or nylon. This meant that not only was she diverting waste from the landfill but the fabric was more environmentally friendly than traditional materials. Oakley, Inc. is a company most known for sunglasses and eyewear but they also make ski and snowboard clothing and the researcher received three small pieces of fabric from them as well.

While the donation of fabric was essential to the project, there were challenges to utilizing the large assortment. One drawback to using a wide variety of scrap pieces meant there was no accurate record of the exact functional properties or fiber content. However, because the researcher had knowledge of the fabrics through working with both Spyder and GoLite, she was able to make an educated assumption about the functional properties and fiber contents of the fabrics and utilize appropriate fabrics in appropriate places on the garments. For example, while the exact waterproof rating of the fabric was not known, the researcher was confident all fabrics had some level of water resistance or waterproofing because they were acceptable for industry use.

The donated fabrics ranged in size anywhere from 10 yard rolls of misprinted fabric to small half yard pieces with small pieces cut out of them that were used by the company when color matching. The fabrics varied greatly in color including fluorescents, neutrals, primaries, and pastels. The researcher received fabric with graphics and prints, textured fabric, smooth fabric, some that was matte, and some that was shiny. In all, there was a huge variety in the donated fabrics. The fabrics also varied greatly in their weight from extremely thin ripstop nylons to more rigid fabrics backed with a layer of fleece. The variety included but was not limited to waterproof breathable pieces, heat reflecting three layer pieces, wicking material, polyester lining material, mesh, fleece, and spandex.

While this incredible variety offered the researcher with numerous options, this again posed challenges. The plethora of fabrics had all different weights, end uses, and functional properties. Finding fabrics that were compatible in weight did not necessarily mean they had similar functional properties and vice versa. Once the researcher found fabrics that would work together technically, she also had to find fabrics that were aesthetically pleasing together and large enough for the garment patterns.

While the majority of the fabrics were donated, the majority of trims had to be purchased. Zippers, elastic cording, cord stops, thread, snaps, seam sealing tape, Velcro, and magnets were all purchased from a local outdoor fabric and notions retailer.

The researcher took stock of all the fabric she received from the three companies and used this as a start for her sketches. Taking into consideration the array of fabrics, the colors, and shapes, two jacket ideas and two pant ideas were produced. Once the garments were sketched, four garment patterns were created by flat pattern and draping methods while the necessary fabrics, trims, and notions were being found. See Appendix

G for the bill of materials. Each pattern was created based a variety of factors. The dominant color for each garment was chosen because the size of the piece of fabric, its technical properties, and weight. Larger pieces of fabric were chosen for the body of the jackets or pant legs enabling the researcher to have enough fabric to cut an entire garment. Accent fabrics were chosen again based on the size of the piece of fabric, but also on color coordination to the dominant color. The researcher designed four independent garments but had in mind, two cohesive outfits. This consideration made it important that the accent colors or fabrics used in each garment would be aesthetically pleasing when worn with its matching piece.

Each garment was created in hopes that the fabrics, styles, and features reflected the desires of the participants expressed in the survey and interview. To ensure protection from the elements, all fabrics were waterproof breathable fabrics and the seams were sealed to create garments that would provide a barrier against moisture. Care was taken to design two distinct fits that could both be comfortable but not overly baggy or aesthetically unappealing. Comfort features such as fleece lining inside the hood and the seat of the pants were chosen in order to minimize chafing against the face and maximize the wearer's warmth. Also to allow for comfort, adjustability features such as drawstrings in the hood and hem of the jacket and the waist of the pants were added. These enabled the wearer to find a fit that was most functional and flattering.

Both jackets utilized similar design detail methods but had very different silhouettes and were unique in fit, fabrics, and styling. Jacket one and pant one were designed to have a looser, slightly baggy fit. Pant one was also designed to have more typical snowboard specific styling with flap closure cargo pockets and longer lower leg

zippers. Jacket two and pant two were designed to be more sleek and form fitting. Specifically, jacket two was designed to have a feminine shape and pant two was designed to have very little external detailing. Both pairs of pants originated from the same sloper but the leg length and fit throughout the hips were altered to show two different fits.

Once the patterns were finalized and the fabrics were chosen, the prototype garments were constructed using traditional sewing methods. A minimal amount of hand stitching was used to ensure the strength and durability of the garments. Seam seal tape was applied to each garment by hand to guarantee the water resistance of the seams.

Prototype Evaluation Survey Analysis

The prototype evaluation survey consisted of three parts, the survey (Appendix H), photographs of the garments, (Appendix I) and fabric swatch cards that were mailed to each participant individually (Appendix J). It was expected that the survey would take the participant between 20 to 30 minutes to complete but the actual time it took was unknown as the participants completed this prototype evaluation survey on their own.

Once the prototype garments were completed, the researcher hired a photographer to take photographs of the garments on a live model. Since some of the participants would not have been able to do a prototype evaluation in person, the survey, photos, and fabric swatches were able to provide each participant with the same information to reduce bias.

The researcher mailed each participant a set of fabric swatches before she sent out the survey to allow ample time for each woman to receive the swatches. The swatch cards included small pieces of each of the dominant fabrics and were divided so the participant

could tell which was used in the interior and exteriors of each garment. It was hoped the swatches would help the participants to better interpret the photographs since they would not see them in person. The survey asked the women to rate the photos of each garment for fit, utility, aesthetic appeal, expression, and environmental friendliness using a five point Likert scale. The survey also asked the women to rate each pant and jacket individually and then to rate each of the two outfits.

The data from the prototype evaluation survey were analyzed using Microsoft Excel and the Statistical Package for the Social Sciences (SPSS). Frequencies and descriptive statistics were run on each of the variables in the survey: fit, length, pocket placement, vent size and placement, fabric color and feel, style, water resistance, femininity, versatility, uniqueness, importance of recycled materials, and use.

Validity and Reliability

Utilizing both qualitative and quantitative data helped support the study's validity. Validity was achieved through prolonged engagement with the research and the research process (Glesne, 2006) as well as by comparing core categories and axial themes that emerged from the initial interview data with the data from the prototype evaluation phase of the research. A second coder reviewed the researcher's coding data and a reliability factor of $r=.82$ was achieved. Constant comparative analysis was to account for any bias in the coding process. The collection of quantitative data from the surveys and qualitative data from the interviews both before and after the prototype development will contribute to the validity of both the research design processes and findings. Triangulation using statistical analysis and supporting comments from the surveys and interviews allowed the researcher to confirm the results.

Reliability was achieved by documenting the detailed methods and procedures so the study can be replicated. Photo-documentation of the prototype development and prototype evaluation phases aid in the reliability of the research project.

Chapter Four

Results

The data results are divided into three sections. The first is the initial survey data, second is the interview data, and third is the prototype evaluation survey data. Each of the three sections are divided into further detail.

Survey

The survey consisted of three parts. The first addressed the woman's demographic and snowboarding history information. The second part pertained to snowboarding clothes use, purchase behaviors, and asked about the importance of different garment elements. The final section asked for the woman's snowboard clothing size and for her to rate her overall satisfaction with snowboarding clothing in stores now.

Survey Section One

The demographic information from the first section of the survey is in Table 1. The mean age of the women was 28.8 years old. The average number of years the women had been snowboarding was 8.7 years and ranged from 4 to 17 years of experience. The average number of days the women snowboarded last season was 36.1 days. Two of the participants snowboarded 150 and 151 days respectively last year; when those women were considered outliers and removed from the data set, the mean dropped to 18.5 days of snowboarding last season and the range dropped to one to 45 days. Since the number of times the interviewees went snowboarding last season ranged from 1 day to 151 days,

the median of 20 days provides a more accurate representation of the number of days the women snowboarded during the 2009-2010 season.

Table 1

Survey Section 1: Mean Demographics

Participants (n=15)	
Age	28.8 years old
How many years have you been a snowboarder?	8.7 years
How many times have you been snowboarding in the past year?	36.1 times
What level snowboarder would you consider yourself?	7.3

Survey Section Two

Table 2 shows the results from the second part of the survey regarding the woman's snowboard clothing use and purchase frequency. Respondents indicated they will wear their snowboarding jackets a slightly longer time than the length of time between purchases (2.9 years worn and 2.3 years between purchases). There is a high correlation between the two variables of time worn and years between purchases, $r = .87$, $n = 14$, $p < .001$, and a paired t-test analysis showed that these means were significantly different, $t(13) = -2.90$, $p = .01$. It seems that women will keep their old jackets and rotate them through their winter clothing wardrobes but will purchase new jackets as well.

When women responded about the length of time they will wear a particular pair of pants, the mean years they are worn ($M=2.8$) and the time between purchases ($M=2.7$) is almost the same. There is a high correlation between these two variables, $r = .62$, $n = 14$, $p < .02$, and a paired t-test analysis showed that these means were not significantly different, $t(13) = -.19$, $p = .86$.

Based on the means, it appears that women purchase jackets more frequently than pants; however the purchasing behavior for jackets and pants is not statistically different, $t(13) = -1.06, p = .31$. Similarly, the mean years of use for jackets is 2.9 years and the mean years of use for a pant is 2.8 and this difference is not statistically significant, $t(13) = .54, p = .60$. The correlation between years of use for jackets and pants however is significant ($r = .81, n = 14, p < .001$). Although the variables are correlated, it is not clear if the women are purchasing their pants and jackets at the same time or if they will purchase a jacket one year and a pant the next but it appears women purchase new jackets and/or new pants on average every two and a half years.

Also regarding women's snowboarding clothing use, the participants were asked if they wear their snowboarding jacket and pants when not snowboarding, ten women indicated they wore their jackets and eight women wore their pants when not snowboarding. Eleven women indicated they have multiple outfits worn when snowboarding, which helps to support the idea that they will keep their jackets slightly longer than the amount of time between their jacket purchases.

Table 2

Survey Section 2: Snowboarding Clothing Purchase and Use

Survey Questions	Mean Years
How often do you purchase a snowboarding jacket?	2.3
How often do you purchase your snowboarding pants?	2.7
On average, how many years will you wear the same snowboarding jacket?	2.9
On average, how many years will you wear your snowboarding pants?	2.8

Note. One respondent receives free clothing from a sponsor company, and is not included in the frequency means.

Also in the second section of the survey, women were asked to rank their preferences of the garment elements; *functional*, *expressive*, *aesthetic* and *environmental* from one to four; one being the most important garment element, four being the least important. Not surprising the majority of women, 80%, listed the *functional* features of a snowboarding garment as the most important. The women ranked *aesthetic* elements as second in importance, *expressive* elements for the third most important, and *environmental* elements were the least important of the four. This data was supported by the interviews in which respondents also indicated the *functional* features of a snowboarding garment as the most important.

The next two questions on the survey, questions 10 and 11, asked women to rank the importance of some pre-listed garment features. Although respondents were given many choices, they were asked to only rank their top five desired jacket or pant elements. The list included examples of *functional*, *expressive*, *aesthetic*, and *environmental* garment elements chosen by the researcher. The survey included a space under each question for women to add additional thoughts or to list any elements they felt were important but were not listed.

In the question pertaining to the jacket, overwhelmingly the most important feature reported was color which is interesting since functionality was said to be the most important in the ranking. Color received the most responses for both the first and second most important features plus the most overall mentions. See Table 3 for the full results of the top five most desired jacket elements. Along with color, feminine appearance, insulation, hand gaiters, and hoods came in as the most important jacket features for women. When the responses are weighted and analyzed (first choice has a weight of five,

fifth choice has a weight of one), color has the highest importance based on the weighted percent. See Table 4 for the weighted percents of the importance of the jacket features.

Table 3

Survey Section 2: Desired Jacket Element Choice Selection

Participants (n=15)						
Jacket Feature Importance	Choice 1	Choice 2	Choice 3	Choice 4	Choice 5	Total
Color	5	4	0	1	1	11
Feminine appearance	1	2	0	2	3	8
Insulated	3	2	0	3	0	8
Hand gaiters	2	0	2	1	3	8
Hood	2	1	2	2	0	7
Seam sealed	1	2	2	1	1	7
Under arm vents	1	0	3	1	1	6
Powder skirt	0	3	0	0	2	5
Variety of pockets	0	0	3	1	1	5
Number of pockets	0	1	1	1	1	4
Sustainable fabric	0	0	0	1	2	3
Brand name	0	0	2	1	0	3
Country of origin	0	0	0	0	0	0
Connects to pants	0	0	0	0	0	0
Total	15	15	15	15	15	75

Table 4

Survey Section 2: Weighted Score and Preference Percentages for Desired Jacket

Elements

Participants (n=15)		
Jacket Feature Importance	Weighted	Percent
Color	45	18.75
Insulated	29	12.08
Hood	27	11.25
Seam sealed	26	10.83
Hand gaiters	21	8.75
Feminine appearance	20	8.33
Under arm vents	17	7.08

Jacket Feature Importance	Weighted	Percent
Powder skirt	16	6.67
Variety of pockets	12	5.00
Number of pockets	10	4.17
Sustainable or recycled fabric	9	3.75
Brand name	8	3.33

Question 11 pertained to women’s pant feature preferences. The results are shown in Table 5. Although color was again the feature that received the most votes for number one choice, pant length was most popular overall. Pant rise and insulation also both ranked higher overall than color in overall votes. Insulation and vents were importance for women’s snowboarding pants as well. Again, when the responses are weighted and analyzed (first choice has a weight of five, fifth choice has a weight of one), pant length has the highest selection percentage.

Table 5

Survey Section 2: Desired Pant Element Choice Selection

Participants (n=15)						
Pant Feature Importance	Choice 1	Choice 2	Choice 3	Choice 4	Choice 5	Total
Pant Length	2	9	0	0	0	11
Pant Rise	4	2	3	0	0	9
Insulated	1	0	1	3	4	9
Color	5	1	0	1	0	7
Leg Vents	1	0	5	1	0	7
Feminine Appearance	1	1	1	2	1	6
Seam Sealed	0	2	0	0	3	5
Variety of pockets	0	0	1	3	0	4
Traditional zip fly	0	0	2	0	2	4
Articulated Knees	0	0	1	2	1	4
Belt	0	0	0	0	3	3
Number of pockets	0	0	0	1	1	2
Lower leg zips	0	0	1	1	0	2
Connects to jacket	1	0	0	0	0	1
Other: Roomy Legs	0	0	0	1	0	1

Pant Feature Importance	Choice 1	Choice 2	Choice 3	Choice 4	Choice 5	Total
Sustainable Fabric	0	0	0	0	0	0
Bib style pant	0	0	0	0	0	0
Country of origin	0	0	0	0	0	0
Brand name	0	0	0	0	0	0
Total	15	15	15	15	15	75

Table 6

Survey Section 2: Weighted Score and Preference Percentages for Desired Pant

Elements

Participants (n=15)		
Pant Feature Importance	Weighted	Percent
Pant Length	46	20.44
Pant Rise	37	16.44
Color	31	13.78
Leg Vents	22	9.78
Insulated	18	8.00
Feminine Appearance	17	7.56
Seam Sealed	11	4.89
Variety of pockets	9	4.00
Traditional zip fly	8	3.56
Articulated Knees	8	3.56
Belt	3	1.33
Number of pockets	3	1.33
Lower leg slits	5	2.22
Connects to jacket	5	2.22
Other: Roomy Legs	2	0.89
Sustainable Fabric	0	0.00
Bib style pant	0	0.00
Country of origin	0	0.00
Brand name	0	0.00

Survey Section Three

The final section of the survey asked about the participant’s overall satisfaction with the current selection of snowboarding clothing available. Using a scale from one (not at all satisfied) to five (very satisfied), eight women were satisfied or very satisfied (score of four or five) with current selections; four were neutral (score of three) and three were dissatisfied or very dissatisfied (score of one or two). From the survey, the majority of the women are either satisfied or very satisfied with the clothing selection.

Interviews

The data collected from the interviews were analyzed using constant comparative analysis. Once a reliability factor was achieved, the researcher coded all of the transcribed interviews into open codes. From the numerous open codes, 23 axial codes emerged and these codes were collapsed into seven core themes. See Table 7 for the list of core themes and subthemes. The seven core themes were: *fit, function, aesthetics, color, personal style, purchase behavior, and environment*. The researcher then divided these themes into various subthemes. These themes helped the researcher identify what the participants needed and desired from their snowboarding clothing.

Table 7

Core Themes and Subthemes

Core Themes	Fit	Function	Aesthetic	Color	Personal Style	Purchase Behavior	Environment
Sub Themes	Length	Performance Components	Pattern/ Print	Hues/ Shades	Femininity	Price & Quality	Environmental Oversight
	Mobility	Protection & Regulation	Fabric	Matching Scheme	Image	Selection Satisfaction	Company Disclosure
	Adaptability	Durability		Gender Roles	Uniqueness	Versatility	Price
	Comfort			Function			Fabric

Fit

Fit was one of the most important garment features women discussed when they talked about their snowboarding clothing. When discussing things they look for in a new garment, one of the major concerns they had was garment fit. Four subthemes emerged as the different aspects of fit with which the women discussed most; *length*, *mobility*, *adaptability*, and *comfort*.

Length. Throughout the interviews, the length of both pants and jackets was mentioned repeatedly. Based on the woman's height and desired fit of her garments, the preferred lengths varied but there was an agreement that pants should be long enough to cover the snowboarding boots and jackets should hit at about the hips. Participant 10 said, "There's just something about if the pant is above your boot at any point it just looks funny to me." This opinion was echoed by Participant 2, "that's one of my biggest pet peeves when I'm not on a snowboard and ... my pants ... don't even touch the ground."

While participants did not want pants that were too short, they did not want ones that were too long either. "They get caught in my bindings" (Participant 14), they, "get all dirty walking through the mud and slush" (Participant 11) or, "I see people all the time with the bottoms of their pants wore off" (Participant 9) were common complaints for women who found snowboarding pants to be too long in general. Participant 13 said, "I always have a hard time with pants just because I'm shorter. Um, so they're always like either too short or like way too long and they just don't fit very well."

The issue with jacket length was again dependent on the height of the person, but in general women preferred jackets that were slightly longer overall. "I like it to hit

definitely below my waist. Like, I like them a little bit longer... probably like, I don't know, mid hip" said Participant 12. Participant 10 said:

I like ...a ...slightly longer jacket. I mean, I'm not talking long down to the knees but like, a lot of companies make these cute little jackets that sit right at your hips and as soon as you move your arms up above your head, the whole thing lifts up.

Participant 6 indicated why length was necessary to her, "a big one for me is that I can bend over and I still feel like I'm protected from the elements." Participant 3 had a more comical, yet also valid need for jacket length, "I want longer length because I don't want anyone to see my butt crack."

Sleeve length was considered an issue by some respondents. Participant 4 felt that in most women's snowboarding jackets, "the sleeves and the bodice is kind of short." Participant 10 explained her problem with sleeve length when doing a snowboard grab, "you grab with one hand the other hand tends to go behind you right in the air and if your sleeve pulls up, that sucks and then your gloves come all out and then you're all messed up." Overall, women wanted their pant length, jacket length and sleeve length to be long enough to provide protection and look appropriate but not so long that it hindered mobility.

Mobility. The second sub-theme the researcher found regarding the fit of garments was mobility. Mobility was discussed in reference to both pants and jackets and for both, many of the women said they wanted, "a little bit looser fit for more mobility" (Participant 13).

In jackets, women generally wanted something that allowed for full range of motion in their arms. "I definitely want some extra room in the elbows and in the back...

shoulder area. Some of the jackets that are more fitted are really tight...so then you feel kind of claustrophobic” explained Participant 8. Participant 11 agreed that the mobility of the arms was important when riding, “the most important thing for me is that I’ve got good arm range of motion... since you’re always like twisting and turning and moving around.” Participant 13 felt feminine shaped jackets were cut too slim or too tight and therefore decreased her mobility, “some feminine jackets tend to be... like really fitted and I like them to be a little bit baggier.”

The aspects of mobility the women expected from their snowboarding pants were a “looser fit,” (Participant 13), “flexibility,” (Participant 1; Participant 7; Participant 15), or a “baggy” look and feel (Participant 3; Participant 4; Participant 5; Participant 10; Participant 12). Participant 13 further explained the need for a looser fit, “I don’t like them too tight just because... I just feel like I can’t move as well and... I don’t think I ride as well.” One of the women who found flexibility in her pants important said she would like to find pants that were, “modeled more after yoga pants... obviously like waterproof and thicker than that but having the overall like softness and flexibility” (Participant 15).

When discussing why she preferred a looser fit Participant 4 felt, “that the baggier stuff ... works better when I’m on the mountain.” Participant 9 explained, “You’re sitting down constantly and reaching over and buckling your bindings so I think that it is important to make sure you have a good range of motion.” For Participant 15, mobility in her clothing equated to a garment that was not too bulky, “because you don’t want to feel like a cream puff man where you’re like all huge in the coat. You still want to feel like you can move and you’re flexible.”

Adaptability. Another way the women discussed fit was in terms of the garment's adaptability. The interview participants discussed how much they liked being able to adapt the fit and comfort level of a jacket or pair of pants to their individual needs. Adaptability for jackets often referred to a woman's ability to layer clothing underneath her snowboarding jacket, remove or secure the hood, and adjust the cuffs. In pants, adaptability included having the option to wear an insulation layer under their snowboarding pants and being able to adjust the waist.

Every interviewee mentioned the layers of clothes they wear under their snowboarding clothing in one way or another. Most indicated that they will change the combination and number of layers under their jacket or pant depending on the weather.

Discussing her expectations from a snowboarding pant, Participant 2 explained, "I should have the option to put whatever layer I want underneath it". Participant 11 elaborated further, "if it's super cold you can do like base layer, mid layer and then your pants and if it's like super hot, like just wear the pants and nothing else." Participant 10 acknowledged a unique need for roominess to layer in the legs of her pants, "when I'm in the backcountry I usually wear... a volleyball pad on my right knee because I tend to punch myself in the face with that knee." Participant 2 explained that when she changes the variety and bulkiness of the layers, she expected that "everything can zip up, I'm completely comfortable, I'm not stuffed in the jacket, it all zips over ... keeps me completely warm and then isn't too big."

During the interviews some participants indicated they liked the option of layering versus having an insulated jacket that was often viewed as too warm or restrictive. "There's at least enough room that I can layer underneath it to keep... warm

versus having an awkward, big, bulky jacket” said Participant 4. When discussing what she liked about her current jacket, Participant 3 said, “it’s a jacket that I can wear most of the winter and layer underneath... versus having a more bulky jacket that is too much warmth than I need.” Participant 5 also preferred to avoid too much volume in her jacket, “Insulation is nice, but again, bulky, restrictive. I’d much rather wear layers and feel loosey goosey and all of that.”

The women’s desire to have varying under layers meant that they often looked for adjustable features on pants and jackets. One of the most mentioned adjustable features overall was an adjustable waist on pants. “However many underlying layers you’re wearing you need to be able to extend your waist” explained Participant 14. Of the adjustable waist in her current snowboarding pants, Participant 9 said, “I usually wear long underwear ... and ... it adds a little bit of depth and I can open them up a little bit more or tighten them up if I’m not wearing my long underwear under there.” Participant 6 spoke of needing adjustability in her waist not only for function but to accommodate her personal style as well:

When I’m out ... on my board and I’m riding and I’m having a good time, I will have them cinched a little bit tighter and all that... But when I’m wearing them out and about, like afterwards, like après ski whatever... I like to be able to loosen that and drop my pants down a little bit.

One participant wears impact shorts and found that it created a lot of bulk around her waist creating a need for pants that would adapt to the additional bulk. She suggested, “Maybe like a more adjustable waist or something that would be...conducive to how many layers you’re wearing underneath” (Participant 2).

Two jacket features women wanted to adapt to their personal needs were the cuffs and the hood. Tightening the sleeve cuff not only helped keep out snow but also allowed women versatility in their glove choices. “The sleeves need to be adjustable down at the bottom with either Velcro or snaps, so that you can snap them over your gloves or under your gloves depending on what gloves you’re wearing” explained Participant 9.

Participant 5 also discussed needing adjustable cuffs, “sometimes I wear different gloves but this gives me the option... to wear it ... over or I can snug it up really... tight and tuck it in.” When women discussed adaptability regarding hoods, they often wanted the option to remove it or secure it. “What if one day I wanted to have it off if it was really nice and I had my helmet on and it was just too much? It would be nice to be able to take it off” said Participant 2. “I like having a hood that ... stays out of the way until you need it” said Participant 3. Having the ability to adjust a garment to one’s individual needs allowed the rider to wear any different combination of layers or accessories which contributed to her overall comfort.

Comfort. Comfort was something that was mentioned often throughout the interviews. It was often the number one thing women mentioned wanting from their snowboarding clothing. “The first thing I think is comfort” said Participant 2. “I would like to just to be comfortable” said Participant 10. When the women described what was comfortable to them, they used the terms, “loose fitting,” (Participant 5) “not restricting,” (Participant 11) “warm,” (Participant 1; Participant 2;) and “flexible” (Participant 7; Participant 15).

One participant who felt that loose garments equated comfort said, “Comfort is more important... I want it to be loose so that I can move and not... feel restricted”

(Participant 5). Women wanted their garments to be loose, but found a point at which they could become too loose and undesirable. Participant 11 explained that she preferred things that were, “comfortable. Not super tight, but like, not way baggy either.”

Warmth was another term that was often used in combination with comfort. When purchasing a new garment, Participant 2 said she asks herself, “Can I layer underneath it comfortably? Um, is it going to keep me warm?” Participant 9 said that she likes her current jacket because, “it’s just really comfortable and it’s really warm.”

Flexibility was the final term the women used when discussing comfort. Participant 7 wants pants that “are flexible a little bit” and, “aren’t constricting.” Also wanting flexibility in her clothing, Participant 1 described what she looks for in a jacket, “like the flexibility in it, like the movement of it is like super, super important...Because I hate feeling like a big puff marshmallow or like not being able to move my arms.”

Function

Function is the second core theme identified from the data. Just as important as the fit of the jacket or pair of pants is the function of that garment. The researcher found three sub-themes within the theme of function; *performance components*, *protection & regulation*, and *durability*. The function of a garment was expected to be one of the most important things a woman would need or look for in a jacket and from the surveys and interviews, this was supported. One participant said, “Function would come first” when discussing how she would choose between two garments. Participant 12 said, “I care more about ... having it be functional” as opposed to being trendy or stylish.

Performance components. The function of a garment is often determined by its components. This sub-theme included all of the actual parts or elements of the garment

the women discussed. Since the researcher constructed prototype garments, this sub-category helped her to organize the functional components that were expected and appreciated in a snowboarding garment. Using data from the interviews and cross referencing with the surveys, the researcher found certain performance components that were desired by the majority of the interviewees. For a jacket, the components were: *secure pockets (hand, inside, and iPod/phone), vents, hand gaiters, a snowskirt, a hood, adjustable cuffs, light insulation and/or lining, and waterproof fabric.* In a pant, women wanted or needed: *secure pockets (hip, cargo, back), vents, boot gaiters, lower leg zips or snaps, traditional zip fly, light insulation and/or lining, and waterproof fabric.* See Table 8 for the list of Performance Components.

Table 8

Performance Components

Jacket Performance Components		Pant Performance Components	
Secure Pockets	Zippered, waterproof, with key hook	Secure Pockets	Zippered, waterproof
Vents	Underarm, allow for heat escape	Vents	Inner leg, allow for heat escape
Hand gaiters	Keep snow out of cuff	Boot gaiters	Keep snow out of boots/pant leg
Snowskirt/ Elastic draw cord	Prevent snow from coming up the hem of the jacket	Lower leg zips or snaps	Widen pant leg to fit over boot/binding and for aesthetics
Hood	Adjustable, for moisture protection and fit with or without helmet	Traditional zip fly	For ease of use and aesthetics
Adjustable cuffs	Velcro closure	Insulation and or/ lining	Light lining layer for comfort and warmth
Insulation and/or lining	Light lining layer for comfort and warmth	Waterproof fabric	Protect user from snow and moisture, for warmth and comfort
Waterproof fabric	Protect user from snow and moisture, for warmth and comfort		

Although this list includes the most mentioned components, not all participants felt the same way about each particular garment feature. Regarding inner leg vents Participant 14 said, “Vents on pants, which I’ve seen, are not a good idea because they just pack snow.” Participant 9 felt the opposite about vents, “that’s one of the big things I looked for when I was buying these pants.” It was rare that every single participant liked or disliked any particular component but with the help of the survey, the researcher found that some features were more popular overall.

Protection and regulation. A very important functional feature of any snowboarding garment is that it keeps the user protected from wind, precipitation, and cold yet allows the user to regulate her temperature by getting rid of excess body heat and perspiration. The researcher found that having pants and jackets that were waterproof was one of the most important protection functions identified by the women. “Once you get wet, it’s just like snowboarding is awful” said Participant 13. Some women expressed the need for more waterproofing in the pants because of how they are used. “I think waterproofing with the pants is even more important than the jacket... because of the fact that you’re sitting down quite a bit. And sometimes you’re, you’re riding through some pretty deep snow” said Participant 9.

When a jacket or pair of pants was resistant to water, it allowed the woman to stay dryer and therefore warmer. “I like the waterproofing obviously just because if it’s snowing, and you go in the lodge and you’re covered in just the dust, then you’re freezing your butt off by the time you leave the lodge” explained Participant 14. While being waterproof does contribute to a garment’s warmth, insulation was the best way to ensure the women stayed warm. As mentioned, some of the women preferred a shell jacket in

which they could do their own layering and insulating, but there was also quite a few of the interviewees who wanted a jacket with insulation. “I was always getting cold on the mountain and so my new jacket definitely has a lot of insulation but also a lot of vents for when I get warm” said Participant 8.

Although the women wanted to be warm, they also needed a way to regulate their body temperature. Vents were the most often mentioned body heat regulation component. Vents were expected to be present in both pants and jackets by the majority of the interviewees. “Pit zips are a must” said Participant 9. Participant 10 explained:

You have to have pit zips...like leg, inner leg, pit zips and uh I don't know if they're called pit zips but knee zips and then under the arms too yeah. That really helps...on spring days when you're hot you can just unzip that without taking your whole jacket off.

A few of the women said they preferred either the underarm vents or the inner leg vents. Participant 13 said she used, “leg vents not as much but I do like vents um, on the jacket.” Participant 6 felt differently, It depends on what you're doing but I would say...if one was more important than the other then I would definitely want them in the pants.” Participant 2 also felt the leg vents were the most useful, “I always unzip those because that's where I get the hottest and to keep from sweating and then getting cold again when you go back up.”

Durability. All participants expected and wanted durability from their clothes. One feature that was discussed in both the interview and the survey was the woman's expectations for the life of her garments. In the survey, participants indicated the average number of years they would wear a garment was about two and a half years. From the

interviews however, the women discussed a much longer actual life expectancy. One participant wanted the life of her jacket to outlast her desire to use it, “I would want... 10 years probably.... I doubt I would be wearing the same jacket for 10 years ever but... the thought behind it” (Participant 15). Participant 5 said, “I don’t like to replace them often.” She explained, “I paid a lot for it three years ago and I will use that jacket probably for a few more years” (Participant 5). When discussing why she would choose a particular garment, Participant 4 said she will, “go with what I think is going to last the longest more than anything.”

The interviewees expected their garments to hold up to abuse and maintain their performance no matter their expectation for the life of the product. Participant 11 elaborates:

Snowboard clothes like, get put through the ringer. Even though I’m thinking I’ll probably recycle it or put it in a ski swap in two years or one year or whatever, like, I still want the quality to be like the best.

Participant 3 was one of the women who spent 150 days or more in snowboarding clothing. She said, “I ride so much every year, for me it’s really hard to find gear that lasts a full season.”

Aesthetics

“The style is just as important as the function. Like, it’s one of those deals where like fashion and function have to both be there” said Participant 11. The researcher found the women’s demand for aesthetic appeal from their garments was often just as important as the function. Within the theme of aesthetics, the researcher identified two sub themes, *pattern/print* and *fabric*. Color is an obvious aesthetic clothing attribute that would

normally be included in the aesthetic description of the results. However, the researcher found that color was mentioned so often in the interviewees it became one of the main themes that will be discussed separately.

Pattern/Print. Patterned fabric was a subject that a few respondents felt strongly about. “I have a pair ...of zebra print pants which are awesome!” exclaimed Participant 6. Participant 14 had a very different view of prints, “these major patterns really are slightly annoying and they’re dated every year. So, not a huge fan of patterns.” The interviewees who liked the prints were already incorporating them into their wardrobes and those who did not care for them stayed far away.

The women who liked prints usually liked the full range of colors, patterns, and prints. “I do like the busy prints. And now you’re seeing a lot of prints that are like art” said Participant 8. Participant 11 described some of the patterned pants she has worn in the past, “I’ve done like paisley color, paisley pants ... I’ve had like pink pants with like red birds on them, I don’t know I kind of like just out there stuff.” Of her current patterned pants, Participant 1 excitedly stated, “I love the plaid, I just love that dark green and black plaid.” One participant said she has worn, “a pinstripe and a polka dot, or like a herringbone and a plaid” (Participant 9).

These same women who liked and currently incorporated the numerous patterns into their snowboarding wardrobe followed fairly strict matching rules. Overall, the interviewees felt that patterns should never be paired together and should almost always be paired with a neutral or solid colored piece. About matching her zebra print pants, Participant 6 said, “but like, no way would I ever be caught drop dead with the matching

jacket.” Participant 13 explained, “If I have like, a good patterned jacket, I usually just get like you know, a very neutral pant.”

For some participants the one bright patterned piece was a way for them to express individuality. One participant felt that having a patterned garment was a way to spice up her more neutral jacket, “I usually buy like a solid color jacket...And then ...fun patterned pants or something” (Participant 15). Participant 8 felt patterned garments were a way for her to express character within her outfit, “The pants do have a neat pattern, and they do kind of represent my personality.”

Also following her own dress rules, Participant 12 said she did not mind patterns but did not want them on her jacket, “I have a lot of hats with weird patterns on them and it would bother me if they didn’t match.” The researcher found that patterns and prints on fabrics were subjects that women had solid opinion. Two of the interviewees felt that prints used in jackets and pants were “obnoxious” (Participant 14; Participant 15). “I’ve seen some big obnoxious plaid coats, and I wouldn’t do that” Participant 15 said. Participant 5 associated patterns and prints with trendy fashions, “I don’t care about the young trendy look... Um, checkered and hounds tooth and all of that.” There were a few of the interviewees who did not like patterns because they felt it made their snowboard clothing less versatile, “I’m not a big pattern person. I’m more of a solid color person. I also want it to be something I can wear out, not just on the mountain” said Participant 7.

Fabric. The researcher found that the fabric from which a garment is made influenced the interviewee’s overall aesthetic preference of the garment. Although the color of the fabric ranked the highest among the women for desirable aesthetic traits, the fabric texture or feel also played an important role. One participant said, “I’m more

drawn to like materials I feel like, than colors” (Participant 10). Another participant expressed that she would, “love to find a jacket that was able to mix color plus different materials” (Participant 2). Classic fabric weaves, and fabric sheen were both mentioned as factors that contributed to the overall aesthetics of a garment.

Participants often mentioned herringbone when they would mention a pattern or fabric. One participant mentioned she was drawn to herringbones (Participant 10) and another was probably describing a herringbone even though she couldn’t quite remember the name of the textured fabric she liked. She described the fabric as: “Typically like a zigzag pattern... it’s more of like a texture than a pattern... and it’s kind of wooly” (Participant 4). Participant 14 was strongly against patterned fabrics on snowboarding clothes; however she, “would do a pattern woven in... because... that’s class.”

Participants each had different ways of describing what they liked or did not like about fabrics. One participant mentioned her dislike for shiny fabrics, “the sheen to it is important, like I don’t like the super shiny” (Participant 1). Another participant felt her snowboarding pants were, “a little too slick in my opinion” (Participant 3). Participant 15 said the fabric on her current pants, “feels a little bit like an SOS pad or something to me.”

During the interview, the participants often offered their suggestions on what they would like to see in a garment. In terms of fabrics, Participant 11 said she would like to see a, “super tech fabric.” Participant 10 said she would like pants with, “a stronger material, kind of like a half-moon on the back ... to protect it from ... fraying.” Participant 2 said she would like to see, “a rubber material on the elbows or up here right above the butt.” She continued that she wanted fabrics that, “definitely could serve a

function, but yet, be used towards the overall design and aesthetic look of it.” The fabrics, along with color, contributed to the garment’s overall aesthetic appeal and would be a deciding factor when they were purchasing pieces.

Color

As mentioned, color would normally be discussed under the *aesthetic* core theme. However, the researcher found that color was mentioned so often and in so many different contexts, that it was not just something aesthetic, it was expressive and even functional. From the interviews, the researcher found four sub themes within the core theme of color: *Hues/shades, matching scheme, gender roles, and function.*

Hues/Shades. Color was the most mentioned garment consideration in the survey and the interviews supported these findings. Every woman mentioned color in her interview and the majority ranked it within her top five important garment elements in the survey. The colors that were mentioned spanned all colors of the rainbow and included primaries, pastels, neons, and neutrals. The women often said that the color of a garment was the reason they did or did not purchase it, and was by far the most important aesthetic feature of a jacket or pant. “I like the color of it and that’s why I bought it” said Participant 12. “Well, first of all color” said Participant 11 when asked what she liked aesthetically in snowboarding clothing. “So I guess color is kind of... my thing” said Participant 4 when discussing her aesthetic preferences. Although color was overwhelmingly important to the women, there was no consensus on which colors were more desirable than others. “Everything I wear is incredibly neutral” stated Participant 5. With a completely different view, Participant 6 proudly stated, “I have leopard pink pants and purple pants and lime green jackets and all these things.”

Describing the colors they like, three participants mention blue, but each described a very different shade: Participant 7 said, “I just am attracted to more brighter stuff like blues or greens or oranges and stuff like that.” Preferring neutrals, Participant 1 said she liked “blues and blacks and browns, reds ... like on the more natural side of the palette.” Another participant said she liked, “navy blue, royal blue, light blues” (Participant 2). Even when women liked the same color, each had a different vision of what shade or hue they preferred.

The women were often more specific when describing the colors they did not like. “No reds, no oranges, no pinks, no greens, um, no yellow” explained Participant 2. Participant 5 said, “I’m not a big black, I definitely hate pink. I like white but I would never wear it.” Even more specific about shades of green, Participant 6 said, “I’m not going to wear chartreuse pants Lime green, sure.” With the great variety of colors and prints mentioned by the women, they also discussed following guides or rules when putting the colors together.

Matching scheme. Amongst all of the mention of the colors the interviewees often discussed how they pair or match different colors. “I usually wouldn’t wear the same color pants and the same color jacket” said Participant 9. Women who wore brightly colored or patterned jackets preferred to wear them with a more basic or neutrally colored pant. One participant had a neutral jacket and described pairing it with a brightly colored or patterned pant. She explained, “I’ll try to pair like a color with something neutral... that way I’m not wearing like a bright color on top and bright color on bottom” (Participant 10). When asked if she would wear a brightly colored snowboard pant, Participant 7 said, “Yeah, I probably would. And like if I did that, I

would probably buy a more neutrally colored coat or something.” Put bluntly, Participant 6 felt, “unless you’re freaking Shaun White, like you should have one bold pattern and one solid color.”

The women interviewed overwhelmingly followed these unofficial dress rules that standardized one bright color or print and one neutral or solid color. Participant 8 explained a dilemma she had when purchasing snowboarding pants to match her red jacket:

After I purchased the jacket I had to find pants to kind of coordinate, they couldn’t be totally a different color... They did have some red pants um, that I tried on. And it was just like a big red stick.

With a similar color dilemma, Participant 4 said, “My last snowboard jacket was lime green... so I wasn’t really thinking when I bought lime green pants because now I can’t really wear them together.” With an idea to solve the dilemma of incorporating new pieces into her current snowboarding wardrobe, Participant 2 suggested a company that:

Continued to make new things that go back to old collections so ... you can change out your jacket or get two pairs of pants and three jackets and they all go together because they were all made from the same materials, collections, and colors in mind.

A few of the interviewees wore their snowboarding jacket as their daily winter coat and wanted it to match with everyday clothes. This influenced how bright or patterned of a jacket the woman would wear. Participant 7 stressed, “I also want it to be something I can wear out, not just on the mountain... a universal coat.”

Participant 1 said, “What would make me the most happy is if I could find a

snowboarding jacket that I felt comfortable wearing every day and didn't just look like I was going snowboarding." The interviewees who did not spend as many days skiing or snowboarding in a year usually wanted to have a solid or neutral jacket that was technical enough for snowboarding but fashionable enough for everyday coat. Participant 15 said, "I usually buy like a solid color jacket, so I feel like it's, that way it's more versatile to wear out."

Gender roles. The interviewees discussed how they used color portray their femininity. Participant 12 said that she prefers to wear clothes that are a little baggier. When asked if she feels it is important to be seen as a woman on the mountain, said, "That's why I pick brighter, girlier colors" (Participant 12). Even women who were not overtly femininity still described wearing more feminine colors. Participant 4 said, "I'm not super keen on the like, making sure I look feminine out there. Other... than the colors I guess."

Feminine colors did not always equate to a basic pink for the interviewees but it was often used as an example when describing femininity. Of the snowboard clothing choices for women, one participant said, "I think it almost gets too like, overly feminine for me. Like you know tons of flowers and hot pink" (Participant 13)." Participant 15 discussed her idea of femininity in snowboarding clothes, "It doesn't have to be pink... to be feminine but ... I don't want a unisex jacket either." Participant 10 felt that, "pink is not bad as long as it's not over done." While not all participants liked pink, they did describe other colors that brought femininity to their clothing. Participant 13 said her current outfit is fairly gender neutral with a military green jacket and ivory pants. She said her pants have, "some purple" to make them more feminine.

Function. The final sub-theme of color was one that emerged unexpectedly. All participants mentioned color as an aesthetic or expressive element but a few also discussed how color served a function for them. Color was used to identify the other members of their party while on the mountain which is important for safety reasons. Participant 7 said, “I like to be seen on the mountain, I like to be able to be spotted so if we’re in the trees or something, Eric can find me. Like that’s kind of important for me.” Participant 13 also felt that color was important to keep her group together on the mountain, “I don’t want to be your generic, all black. You know... I don’t need to be fluorescent but ... some kind of defining aspect so that we can find each other. Especially in shitty (sic) conditions.” Participant 4 also found color was an important tool for identification:

That’s part of why I like the bright clothes... tons of people out there have black jackets or brown jackets or red jackets. But when I’m skiing with my friends you know, it’s nice because we like to stick together... we usually we ride up together and they’re like, ‘oh Amanda’s wearing this’

Personal Style

Personal style was the fifth core theme the researcher developed from the data. Within personal style, three sub-themes were found; *femininity*, *image*, and *uniqueness*. The researcher found that the women enjoyed combining their garments and accessories to create a unique, personal style that fit the image of how they saw themselves.

Femininity. As previously discussed, color was an important tool for women to portray femininity in snowboarding clothing. The researcher found that clothing alone was not the only way for women to let others know her gender. Women also used

feminine colored accessories, such as hats or goggles, or feminine shaped garments to communicate gender. In all of the interviews the women discussed femininity to some extent and some further explained how or why they portray a female image. Participant 14 felt strongly about defining her feminine image on the mountain, “I think that’s strong for women to show our presence” because, she explained, “when you have a helmet on and a beanie, nobody knows the diff.” Another participant; however, indicated that she did not want to look too effeminate. She explained, “I like it to be balanced enough that it doesn’t look um, so super feminine and almost like high maintenance” (Participant 13). Even though she did not want to look too feminine, Participant 13 still felt it was important to show at least some femininity. About her current jacket with subtle purple detail, she continued, “I like that it is not overly feminine but it’s just enough to make it obvious.”

Whether or not one’s display of femininity was a top priority, the interviewees often spoke of using different pieces of their snowboarding wardrobe to show their feminine sides. One woman said, “I like, some of the like the girlier accessories. Like I definitely wear like a purple handkerchief around my neck” (Participant 6). Participant 5 said, “My goggles are light blue, they look kind of girly.” When asked how she portrays a feminine image while snowboarding, Participant 15 responded, “I guess my hat and my goggles...for that.” Participant 8 talked about buying a new helmet and being excited about the feminine ones, “I’ve even seen the pink helmets before!” While Participant 8 liked the idea of a pink helmet, Participant 14 asked, “and is there anything we can do about our ugly helmets? They don’t look very feminine...we can make them pink all day long.”

One other accessory that was mentioned by quite a few of the interviewees was hair. Although hair is not a snowboarding specific accessory, it emerged as an important tool for women to portray their gender. Even when a woman did not show femininity in any other way, she would often allow her hair to peek out from under her hat or helmet. Participant 3 said that she wears men's snowboarding clothing rather than women's because of the fit. She explained, "When you look at me, you probably won't guess that I'm a girl off first hand and then you'll see, I always keep long hair." Participant 15 also discussed how her hair was a way to make her feel more secure, "I'd always, you know, just wear it in braids ...I could never have my hair completely tucked away because that made me feel like too manly." When asked if she wanted to portray a feminine image, Participant 6 responded:

I didn't think I did until the winter when I chopped off all my hair. And I had really short hair and you couldn't tell. And it was one of those when all of a sudden I was like, I didn't realize... how important it was for me to kind of have that braid... you know that big, long curly hair coming out of the back of the helmet.

Femininity for women was displayed not only in color and accessories, but in the shape of their garments as well. Participant 13 wanted to show femininity in the shape of her clothing because she gets, "mistaken for like a little boy a lot." She preferred to have garments that were, "a little bit more, like feminine fitting." Participant 8 explained that she wanted to be warm in her clothes but, she also wanted, "a slimmer look, so I look more like a female versus a marshmallow." Participant 6 tried to describe the complexity of the situation, "You should look like a woman in a ski outfit... I don't think you should

look like a bro-brah.” Adding clarification about her pants she said, “I’m not saying that I want to be like snow bunny style, but when I’m riding I want them to be, maybe just a little more fitted.”

Finding a balance between fitted and feminine was sometimes difficult for the interviewees. Participant 13 explained that, “some feminine jackets tend to be... really fitted and I like them to be a little bit baggier... but... it is important for, to have a feminine fit.” One participant described the complication:

You ...want to have like a... cute shape on the mountain. And if you get the too big size it’s...really comfortable then you just feel like...you’re just this ‘blah’ coming down the mountain. But you want something that’s fitted and shapely but I feel like you want to be able to breathe in it and not like have it be this tight thing somewhere (Participant 15).

When and where one showed her femininity was a situation that came up with only one participant. She explained why she felt portraying an overly feminine image in the terrain park was a negative thing for her:

I feel like, as a woman ... people are going to expect you to fail...They expect you to fall and they’re like ‘oh, ha, look at that girl’ ...So, that’s one of the reasons why I kind of um, dress neutral I guess... When I’m in the park I try to like hide kind of...I wear full face mask, I wear a hat, I put my hair up ... you can’t really see whether I’m a girl or a guy.... I don’t want people being like ‘oh yeah that girl’s really good’ when I want them to be like ‘oh that rider is good’ (Participant 10).

While Participant 10 was the only interviewee to talk about actually covering up her femininity, other participants made mention of the fact that it was not very important to them. Participant 2 preferred, “functionality versus looking feminine... I would buy a men’s jacket over a woman’s jacket if it price-wise was more functional and durable.” With a similar view, Participant 5 said, “I don’t care about the, the feminine fit so much as just the overall comfort of it.” Supporting the survey results, the interview data showed that although femininity was important, it was not as important as the function or aesthetics.

Image. The way a woman wanted to be portrayed in her clothing while snowboarding varied. One wanted to be seen as “cute” (Participant 9) and another woman said she wanted to be seen as “athletic” (Participant 15). Participant 6 said she wanted to be seen as “steezy” and Participant 11 said “stylee.” Almost all of the interviewees had an idea in their mind of how they wanted to be seen by others and they used dress cues to communicate that. This also meant they made judgments of other people as well. Even if they had not considered the topic before, the interviewees had a lot to say about how their image was incorporated into their personal style. The most commonly mentioned image topics were a snowboarder image and reflecting one’s ability level in clothes.

Within a woman’s personal style, she often wanted to include symbols or designs that were synonymous with a snowboarder image as compared to a skier image. “There’s just such a big difference between the ski and snowboard clothing” said Participant 13. “I definitely want snowboarding clothes that look like snowboarding clothes that are distinguished from your average ski clothes that you see” said Participant 8. Based on the interviews, many of the women felt attitude and pant fit were two things that

differentiated skiers from snowboarders. One participant said, “I think snowboarders like have a little more fun and they’re like a little bit more laid back and not so like, up tight about stuff... I don’t know their pants are definitely loser” (Participant 11). In an almost patronizing tone, Participant 7 laughed while she said, “I probably wouldn’t wear tight pants. But that’s because I snowboard.” Participant 15 said, “I just see that the snowboard style is a little bit more fun and loose.” The women often saw baggy pants as the way to show their inclusion in the sport.

While some women made reference to tight pants as a style associated only with skiing, other women discussed fitted pants as a current snowboarding clothing trend. The women who discussed the idea of trendy tight pants did not usually like the idea of them, “I also think that a lot of the pants like are going towards that skinny jean look, and that just doesn’t work for me” said Participant 9. Of the tight pant trend, Participant 10 said, “I know style is like a huge issue nowadays. With like the pants, there’s the narrow, tight fitting knee...I just think they’re the most un-functional things possible. Like, I like regular fit, baggy snowpants.” Participant 11 also expressed her dislike for the trend, “So like, when everything went all freaking tight look, I didn’t go for that” she said.

Pants that were too loose, baggy or voluminous were again undesirable. “I just hate the look of really baggy snowboard pants” said Participant 7. Participant 10 explained, “Because there’s a point where it’s like, I see girls wearing the most gangster stuff and ... they’re wearing like men’s XL and you’re like, are you serious?” When asked how she likes to be perceived while wearing her snowboarding clothing, Participant 9 said she wants, “to look somewhat trendy but you know, my clothes usually fit me. I don’t have super large pants and super large jacket.” Women perceived pants

that were either too tight or too loose to be overly trendy, un-functional, or generally undesirable. Participant 5 said that she did not want to have clothes that were too loose because it created a negative connotation in her mind, “I don’t want it to hang off of me like a snowboard punk, but I want it to be loose so that I can move and... not feel restricted.”

While garments were a way to show others she was a snowboarder, it was also a way to show her skill level. Participant 12 said when she sees people wearing, “sort of high tech clothes, like with the technical features... that seem tied to performance, I perceive them as better at what they’re doing.” With a similar opinion, Participant 15 doesn’t like her clothes, “to be like... overly tech-ed out” because she doesn’t want people to, “perceive that I’m better than what I really am.” Participant 9 was careful not to wear clothes that were too flashy because she did not want others to think, “Wow, she must be a really great snowboarder to wear such a loud outfit.”

While some women did not want to wear clothes that made them seem more skilled or experienced than what they were, other women discussed not wanting to be perceived as having less skill. When asked how she wants to be perceived in her snowboarding clothing, Participant 11 said simply, “Like I know what I’m doing.” Participant 13 explained, “I don’t really like stuff that sends off the vibe of being like, a newbie.” When asked to explain a newbie, Participant 13 stated, “I feel like, you know, newbies always like, are in the bright neon.” When asked how she avoids looking like a new or inexperienced snowboarder, Participant 15 said, “You never have a gap between your hat and your goggles.” Participant 12 discussed the cue she used to equate skill and clothing, “When I see people wearing jeans like on the ski hill I assume that they never

ski.” Participant 9 felt that whether a rider was new or experienced, she said, “You better be representing by what you’re wearing.”

Uniqueness. Another way for women to show their personal style within their snowboarding wardrobe was to find unique garments or accessories. Uniqueness within a woman’s style was not to be confused with standing out, however. Participant 13 liked pieces for their “originality” but did not want them, “shouting it out at everyone.”

Most often, wearing a unique jacket, a distinctive color combination, or unique accessories was how women set themselves apart from other people on the mountain. “I like to have a unique outfit. I really dislike going skiing or snowboarding and seeing 10 people with that same outfit” said Participant 9. Having an uncommon jacket was one way women made their snowboarding outfit distinct. “I don’t want to ride with three other girls that have the same exact jacket...or jacket style” said Participant 13. To some, it was only about the jacket and not the pants. Participant 3 said, “I could care less... if someone else has the same pants, but I like to have a more unique jacket.” While pant originality was less important to some, one participant made her pant color part of her signature look, “When I got the green pants and the purple, I was like, oh I haven’t seen anybody with this color combination, I’ll do that.” Participant 5 felt it was her pant and jacket color combination that made her outfit unique, “I think that brown jacket and white pants is kind of my signature look so maybe yeah, people can pick me out of a crowd that way.”

Participant 6 discussed wanting her snowboard clothing to be reflective of an everyday clothing wardrobe, “I’m not afraid to go out on a limb and get something unique. But that’s me....That’s true in like what I wear outside of being on the mountain

...I like to push the envelope.” Participant 11 also felt snowboarding clothes should be distinguishing, “You want your own personal style to be reflected in what you wear” she said. From the interview data, only one woman said that she did not want anything too unique. Participant 15 said that if she saw someone with her same jacket, she would know, “it’s something that is still cool and you know you’re not like that far out there...I don’t feel like I need to be setting trends... I’m fine with blending in.”

The interviewees who felt a unique outfit was important to them made an additional effort to find those special pieces. Participant 6 described going shopping in a town 90 miles from her home to get different brands and limited supply items. Of a particular store she said:

They sell Cappel and Ride and Holden and some of these that are a little bit more, um, they’re more unique.... They don’t carry a huge product line. Like they’ll carry sizes small through large and once they’re gone, you know? (Participant 6)

Some participants thought it was nice to have a unique look but it wasn’t at the top of their priority list. About finding unique pieces, Participant 2 said she did not feel it was, “super important because I haven’t put money into making it super important.”

Purchase Behavior

The sixth core theme identified by the researcher was the interviewee’s purchase behavior. Throughout the interviews when the women discussed each topic, they often made reference to what would influence them purchase a garment or not. From the data emerged three purchase behavior sub themes: *price and quality*, *selection satisfaction*, and *versatility*.

Price and quality. While functional and aesthetic features influenced a participant's initial attraction to a garment, price was the determining factor to whether she would actually purchase a garment or not. Some women had very strict budgets for their snowboarding clothes and were not willing to go over a set price. Even if she liked everything about a garment, if it was out of her price range she would not purchase it. Participant 4 explained, "I have my price set, I'm not going to be like, 'oh this is really functional and it is the right color but its \$200, oh that's ok' ... Price is important as well." Other women felt that since they planned on wearing their snowboarding garments for many years, they were willing to spend more on the pieces. Of her current jacket, Participant 5 explained, "For me it was an investment and I don't have lots of money and our sports are expensive. I just think the fact that I can get some years out of it justified it in my mind." The researcher found that when a woman spent more on a garment, the longer she expected it to last longer as well. Participant 4 said, "I feel like if I'm going to be spending you know, a decent amount of money, I would like to wear it until it goes into the ground." Participant 7 felt the same, "I would probably spend a bit more money on something if I felt like it was going to last longer" she said. One participant said she would spend more money if she knew she was going to be satisfied with her purchase. "I'll spend more and buy a \$200 pair of pants...because I know that they fit... And they make me look good" said Participant 6.

Some of the interviewees discussed the actual amount of money they have spent or would spend on a jacket or pair of pants. Participant 4 said she would, "spend about a hundred dollars on a good pair of pants or a jacket" and expected it to last "two or three

years at least.” Participant 6 was willing to spend \$200 on a pair of pants, and Participant 5 said the favorite thing about her pants was, “they were \$26 dollars.”

While some women discussed how much they would spend, others mentioned what they would not spend. Participant 15 said, “I might absolutely love the coat but if it is 400 dollars I’m not going to go get a 400 dollar coat.” Participant 10 said, “Most people can’t afford four hundred dollar snowboard jackets. Like that’s ridiculous.” The researcher found that while a few participants were willing to go over their budget to get something they really liked or a more quality product, there was still a consensus among the majority that anything over four hundred dollars was too expensive.

The researcher found the women made a strong connection between the amount of money they spent on their snowboarding clothing and the quality they expected. The women expected their clothes to be durable but they also felt the quality of the garment should match the price they paid for it. Participant 1 said that when she is looking for new snowboarding garments, she wants, “whatever is the best quality for the best price.” Most of the interviewees were willing to pay more for a quality product in hopes of getting a longer life from it. Participant 13 said, “I like to spend the extra money and get something that’s more expensive when it comes down to it instead of something that’s cheap that I don’t think is going to last as long.” Participant 12 also said that she “would definitely spend more for like a quality piece.”

Participant 15 did not need best quality product on the market but she still had certain expectations from her garments, “I do want an overall good quality where I don’t like want my zipper to break or I don’t want something else to happen with it, but I’m not worried about like the whole next level of quality beyond.” With a very different

situation, Participant 3 spent more than 150 days snowboarding last season and indicated that she found it difficult to find garments that would stand up to that much use, “Um, but that’s also why I stick with 686 is because their gear, is on the higher level of quality that I’ve seen for snowboard gear... I know that their pants will last me a whole season.”

In order for the women to get the best quality and the best price, they talked about how they would shop for it. Participant 4 said, “I try to do end of season or after, at least definitely not in the fall time for shopping for clothes.” Finding sales on snowboarding clothes allowed the women to find pieces that fit both their budget and quality requirements. Participant 13 explained, “I don’t necessarily find it important anymore to pay full going, manufacturer’s price for anything because it’s over marked in my opinion.” She described her shopping experience, “usually I run into them and I just decide, ‘I want that jacket’. It’s like, a, an epiphany, that’s my jacket. And that’s literally how I’ve come across a lot of things.” Participant 4 said, “If you don’t have to have everything perfect, you’re going to be able to find something that will work for you.”

Selection satisfaction. Selection satisfaction is the second sub-theme within purchase behavior. The survey found that the majority of participants are either satisfied or very satisfied with the current selection of snowboarding clothing available for women. However, the minority of women were the ones who were most likely to express their dissatisfaction. Participant 8 said, “I have never had a super happy moment whenever I go shopping for snowboarding clothing. Um, because there’s not much selection, I don’t think out there.” Participant 5 explained:

I think that there’s a, a much greater selection, um, for boys and... I find snowboard clothes are geared to really young people... Um, typically, that limits

you even further, so if you're not trying to be all trendy and stylish and you're not a guy, your choices get really minimal. So, I'm dissatisfied with the selection.

One of the things women repeatedly found frustrating about shopping for snowboarding clothing was the limited selection available for women. Describing her last shopping experience Participant 15 said the retail location was, "like a big, more like a warehouse-type store. It's kind of manly and geared toward the boys...it's definitely not like overly catered to women or to our style in that way." Participant 8 echoed this complaint, "the snowboarding shops... when I go in there it seems like they're oriented or geared more towards men." Making her selection even more difficult, Participant 9 described how location influenced her shopping, "it's hard to find selection, and especially, I mean, we lived in a small town so it was really difficult for me to have a larger selection."

The researcher found the women also reported dissatisfied with the price of women's snowboarding clothing. Participant 13 said, "I think there is a huge gap between kind of like the lower end snowboard gear and the higher end....I think there's just a lot missing in the whole middle area. Even like the upper middle." Participant 5 explained:

I think it's ridiculous, the pricing. And especially for the women's stuff because there's always some kind of dialed in feature that makes it pretty or attractive or um, I just think you are going to pay more for something that's pleasing on the eye.

As reported in the survey, not all participants were dissatisfied however. One participant said she was satisfied with the, "trends and fits that they come out with" (Participant 13). Participant 15 said, "I'm not extremely picky so I think I could go out and find something." "I can't figure out anything that they don't have that I would want"

said Participant 7. Of the current selection Participant 12 said, “I feel confident that I’ll definitely be able to find something that I like.”

Versatility. Versatility is the final sub-theme within the purchase behavior theme. When the interviewees described wanting versatility, they most often mentioned their jackets specifically. This made sense because it was the piece of snowboarding clothing worn outside of snowboarding. The researcher found that women wanted something they would feel comfortable in when they were not on the mountain.

Participant 15 explained her idea of a versatile coat:

If you can wear jeans and boot, like if you can dress it up, it’s a good coat.... If you could never dress it up... then like I probably wouldn’t buy it because I don’t think it’s like versatile enough.

With similar viewpoints, Participant 1 wanted a jacket that, “didn’t just look like I was going snowboarding” and Participant 7 wanted, “something I can wear out.”

Not all participants worried about matching their snowboarding clothes with their street clothes, they needed versatility within their snowboarding wardrobe. “It’s more about like picking the right jacket for the right day” Participant 6 said. She continued jokingly, “I also have the luxury of having about 15 jackets.” While most women did not have the luxury of 15 jackets, most did describe needing multiple options depending on the weather. “I like softshells and insulation... the hardshell is great. I think you should have all three... depending on the day” said Participant 14. Wanting all features in one jacket, Participant 12 said, “I would like it to be kind of more versatile, like I don’t know, if it had the option of like venting it or taking away or off so that I could use the same jacket if it’s cold or hot.”

Discussing versatility within their individual snowboarding wardrobes, participants said they wanted to purchase new pieces they could wear with their current or older garments. Participant 11 said she replaces pieces in her wardrobe on a, “yearly cycle....like every year I usually put some stuff into the ski swap and then buy some new stuff too...I really like, like to switch it up from year to year.” Participant 9 said, “like every once in a while I’ll feel like going back and wearing something that I wore a few years ago... I like to switch things out quite a bit.” Elaborating, Participant 9 continued:

Living at a ski area you’re out on the mountain a lot and I enjoy having different outfits and I like mixing it up. So I probably buy 3-4 jackets and 3-4 pair of pants a year, or I have that many circulating through my wardrobe whether it’s outfits from the year’s past or whatever but I definitely have a wide variety of outfit to wear.

When a woman held onto pieces from previous years, it gave the garments a longer life and the woman a larger wardrobe.

Environment

The seventh and final theme that emerged from the interview data was the environment. The researcher prompted each interviewee to think about environmentally friendly snowboarding garments so not many of the women would have brought the subject up on their own. However, from the discussions around environment and snowboarding clothing emerged four themes; *environmental oversight*, *company disclosure*, *price*, and *fabric*.

Environmental oversight. During the interview each participant was asked to describe or discuss their idea of an environmentally friendly snowboarding garment. One

of the most common responses from the women echoed that of Participant 7, “I didn’t know they made environmental or environmentally friendly coats.” Until the interview, many of the women had never considered environmental friendliness in terms of clothing, let alone snowboarding clothing. “I’ve never thought of environmentally friendly clothes I guess” said Participant 13. More aware of environmental clothing, Participant 15 said, “I do love and I do notice the difference in my organic tee shirts, that they are really soft.” She continued, but “you know sadly I, it’s something that I never even really considered in my winter clothes” (Participant 15). One participant responded honestly, “I don’t know enough about it to even know what to look for or see” (Participant 2). Even though the majority of women had never connected environmental friendliness with snowboarding clothing, Participant 6 said insightfully, “It’s kind of crazy to think that we’re not doing it, you know?”

Company disclosure. Once the interviewees thought about environmental friendliness in regards to snowboarding clothing, most often their first comments or questions focused on the company manufacturing the garments. Sounding slightly confused, Participant 3 said, “I’ve never thought of environmentally friendly clothes I guess besides if they’re made in a factory and you know they’re use of like wind or something to make everything go.” Participant 8 made connections between environmentally friendly clothing and the factory environment as well, “the factory that it’s made in, I’d want that to be kind of um, eco-friendly factory. A green factory. Have some type of green status or rating.”

Energy use or preservation was the way the women most often described environmental friendliness. Participant 11 said, “I think the company itself should, should

be like environmentally friendly. Like they should look at, I don't know, trying to find alternative sources of power... for running their business." Participant 15 said a company would be environmentally friendly, "if you knew if it had reduced energy cost or something." Thinking beyond just the factory environment, Participant 12 said, "I would expect that it was maybe made in an energy efficient way. And maybe not shipped from like a really faraway place."

Rather than thinking in environmental preservation terms, many of the participants described social responsibility within the business:

I guess it's where the materials are harvested and where they come from and who is, who is producing them for us? Is it it, you know a child labor factory in China? Or is it people actually looking into textiles and doing you know a legitimate job and they're getting paid... good. (Participant 14)

Social responsibility or philanthropy was popular among the women. Participant 13 said, "More than anything I think it actually would be if there was any sort of philanthropy tied into it." Participant 15 said, "to me that's something that I would sort of base my decisions on. On how like a company is giving back too... in addition to how sustainable the materials are." A few of the women referred to a shoe company that donates one pair of shoes for every one that is purchased. Following a similar model, Participant 13 said she would like to see, "something in jackets you know a, a certain amount of like, I don't know, tester jackets will be donated to like a homeless shelter or something like that." A supporter of philanthropic gestures but slightly skeptical Participant 14 said, "but, I'm not going to donate to something that everybody says is 'oh fabulous' and I'm paying a bunch of people to process paperwork."

Price. As the interview participants pondered environmental awareness or social responsibility, almost everyone made a comment about the monetary costs associated with environmentally friendly processes and goods. About organic food, Participant 5 said, “that’s the problem I have with eating organic or buying this because it’s green, it’s just, it’s tricky because they always end up being more expensive.” Skeptical of environmentally friendly clothing, Participant 3 said, “what I’ve seen in the past is usually the price is higher, so um, so sometimes you can pay more to be more environmentally friendly.” Bringing the subject back to environmental snowboarding clothing, Participant 1 said that snowboarding clothes are, “such an expensive purchase...I would probably go for whatever I could afford.” She continued that, “in a perfect world, I would definitely pick the environmentally friendly, sustainable, hopefully at least domestically made” garments.

Fabric. The interviewees were asked to think about what they would expect from an environmentally friendly snowboarding garment. Often, responses included discussions about fabric. Some interviewees had knowledge of snowboarding clothing fabric and others did not. Not understanding the properties of cotton are not ideal for wicking moisture away from the body, Participant 2 said she would like to see, “Cotton like as a liner.” Participant 5 said comically, “the only materials that I know that are super great right now, like trendy is the soy. I have like a soy sweatshirt. So, if I really get hungry when I’m running I can just eat that.” Participant 6 discussed her understanding of chemicals in waterproofing agents and said, “With all the technology that’s going on, like you would think that they would come up with... you could find some way to put something on top of it... I mean, they do it for houses.” Most participants said they would

expect the garments to be made from, “Materials that are more... environmentally friendly” (Participant 3) although they didn’t often know what that meant. One participant wanted to see fabrics made from, “any sort of recycled materials,” (Participant 13) or from “recycled clothing or some sort of recycled material” (Participant 9).

A couple of participants expressed concerns with the durability of an environmentally friendly fabric. Participant 15 said, “If the quality or anything was compromised because it’s like biodegradable or whatever” she paused, “like, how is the quality somehow compromised because of that?” Participant 6 expressed her concern with recycled fabrics:

I don’t want it to be non-washable... I will be the person that will spill my nachos on my clothes at lunch and I will sit on the one grease spot that was on the chairlift... So like, if I can’t wash it and it’s going to break down because it’s not like, up to par as other materials because it’s environmental, you know like more friendly, then...I’m not interested in that either.

Participant 10 knew more than any other participant about fabrics or materials and offered her thoughts on environmentally friendly snowboard clothing:

I think since it is a new thing, it’s going to take a lot of finding out like what materials work as far as being recycled, also being waterproof, being breathable, being movable, um like flexible and stuff.

Prototype Evaluation Survey

The survey data were analyzed using Microsoft Excel and SPSS. Frequencies and descriptive statistics were run on all survey questions. The final set of data results came from the prototype evaluation survey. 14 of the 15 surveys were returned for a 93%

response rate. The prototype evaluation survey was separated into six sections: *jacket one*, *pant one*, *outfit one*, *jacket two*, *pant two*, and *outfit two*. Each section asked the women to rate her opinions of various garment elements on a five point Likert scale. The six sections were broken down further into subsections.

The sections that asked the women to rate jacket one, pant one, jacket two and pant two were broken down into three subsections. The first asked the participant to rate her level of like or dislike with the listed features, the second asked her to rate her level of agreement or disagreement with some given statements about garment features, and the third gave the woman a chance to share her overall thoughts on the individual garment. See Appendix H for the prototype evaluation survey.

The sections that pertained to outfit one and outfit two had only two subsections. The first asked the woman to rate her level of agreement or disagreement with the statements and the second was an area for her to provide overall thoughts on the entire snowboarding outfit. Throughout each of the six sections the survey results are supported by the additional comments provided by the women.

The researcher created the prototype evaluation survey to have statements reflecting the functional, expressive, and aesthetic components found in the FEA Consumer Needs Model (Lamb & Kallal, 1992), statements to reflect the proposed environmental addition, and statements to get a small amount of data on buying behaviors.

Jacket One

The first section of the prototype evaluation survey asked the women to look at photos and fabric swatches for jacket one when giving responses. Each participant was

asked to rate her response to each statement on a one to five scale. A rating of one indicated she very much disliked a feature or very much disagreed with the statement, five indicated she very much liked a feature or very much agreed with the statement. See Table 9 for survey results from jacket one prototype evaluation.

Table 9

Jacket One Prototype Evaluation Results

Participants (n=14)					
Jacket One Features	Mean rating for: Like/ Dislike Agreement/ Disagreement	Standard Deviation	Jacket One Features	Mean rating for: Like/ Dislike Agreement/ Disagreement	Standard Deviation
The fit of the jacket	4.4	.63	I like the look and feel of the exterior fabrics	4.7	.61
The length of the jacket	4.5	.76	I like the look and feel of the lining fabrics	4.6	.76
The length of the sleeves	4.0	.96	The lining fabric seems appropriate for a snowboarding jacket	4.6	.65
It appears I could layer comfortably underneath this snowboarding jacket	4.6	.50	It is important to me that this snowboarding jacket is made from recycled fabric	3.6	.76
Outside pocket placement	4.1	.62	Because this jacket uses recycled fabric, I would be willing to spend up to \$50 more for it	3.8	.70
Inside pocket placement	4.1	.77	Because this jacket uses recycled fabric, I would be willing to spend more than \$50 more for it	2.6	1.2
Vent placement	3.9	1.0	The style of this jacket is snowboarder specific	3.2	.89
The vents appear to be a good size	3.9	1.1	The style of this snowboarding jacket has a feminine appearance	3.9	.83

Jacket One Features Continued	Mean rating for: Like/ Dislike Agreement/ Disagreement	Standard Deviation	Jacket One Features Continued	Mean rating for: Like/ Dislike Agreement/ Disagreement	Standard Deviation
Knowing the waterproof rating of the fabrics used in this jacket is important	4.6	.65	This jacket is unique compared to other snowboarding jackets I have seen	4.1	1.0
Knowing this snowboarding jacket is fully seam sealed is important to me	4.2	.89	I would wear this jacket when I was not snowboarding	4.1	1.0
Exterior fabric colors	4.1	.66	I would wear this jacket with my existing snowboarding pants	3.2	1.5
Lining fabric colors	4.3	.83	I could see myself wearing this snowboarding jacket	4.2	.80

The first feature the women were asked to rate in the jacket one section was fit ($M=4.4$, $SD=.63$). Only a couple of the participants made comments about the fit of the jacket, Participant 15 said, “It has a cute style and shape – especially looking at it from the back” and Participant 14 said, “Great fit.” The length of the jacket received higher ratings ($M=4.5$, $SD=.76$) than the length of the sleeves ($M=4.0$, $SD=.96$). Participant 3 explained, “I like the length of the jacket but from the rear photo and the jacket from the front, it looks like the arms are bunched up and longer length than needed.” Also pertaining to fit, the participants were asked to what extent they agreed or disagreed that a wearer could layer comfortably underneath the jacket ($M=4.6$, $SD=.50$). This would indicate the garment offered sufficient room for the women to wear a variety of different layer weights underneath and still be comfortable.

The participants rated how much they liked or disliked the outside ($M=4.1$,

$SD=.77$) and inside ($M=4.1$, $SD=.62$) pocket placement on jacket one. Participant 10 said of the outside pockets, “I do think the format (sic) pockets look a little high.”

Participant 11 offered, “I’m not sure if the iPod pocket is lined with fleece or not, but that might be a good idea to keep it warmer so that the battery lasts longer.”

The vent placement ($M=3.9$, $SD=1.0$) and size ($M=3.9$, $SD=1.1$) were two other features the women were asked to rate. The researcher put the vents in jacket one in a non-traditional place on the front of the garment as opposed to in the seam under the arm. Participant 6 said, “Pit zips seem a little forward but this might be a nice surprise for ventilation.” Participant 10 elaborated:

From what I can see in the picture the pit zips for vents look way too small. if they went down to the length where the girls hand is on her hip I would think that would be a little more functional for air. As fas (sic) as the placement of them though I really like how they are a little more toward the front of the body, Makes opening and closing them a lot easier.

Waterproof or water resistant garments were found to be important to the participants and therefore waterproof fabrics were used for prototype garments and the seams were covered with a seam sealant tape. The exact waterproof rating for the fabric used in the prototype jacket was unknown. However, it was known that the fabrics came from producers of outdoor apparel and were known to have waterproof or water resistant properties. The participants rated the importance of knowing the waterproof rating ($M=4.6$, $SD=.65$) higher than the importance of knowing the garment had seam sealing ($M=4.2$, $SD=.89$). It was more important for the women to know the garments were at least made from waterproof fabric. The use of seam sealant, although still important was

not as much as the fabric itself.

The women's thoughts on the colors and fabrics used were also recorded in the survey. The mean score given to the colors used for the exterior ($M=4.1$, $SD=.66$) of jacket one was lower than that of the interior fabrics ($M=4.3$, $SD=.83$). Most of the women's comments were directed at the colors of the jacket as opposed to any other feature. Participant 7 said, "I love the color transition down the sides and front zipper from dark to light. It allows for an option in pant colors." Participant 5 liked the color gradation but was not keen on the gray color used in the body of the jacket, "I like the side colors, but the dark grey isn't my favorite.... It's a cool looking jacket, the only reason I'm neutral to buying it is because of the color." Participant 10 was not a fan of the gray used in the coat either, "The grey in the picture looks a little on the green side to me. The grey is a little too basic with the cut of the jacket." Participant 3 offered, "I like the blue colors but the grey tends to weigh it down and make it a lot less feminine."

In addition to fabric color, the participants were asked to rate the look and feel of the exterior and lining fabrics. The mean rating for the look and feel of the exterior fabric ($M=4.7$, $SD=.61$) was rated higher than that of the lining ($M=4.6$, $SD=.76$). Of the appropriateness of the lining fabrics ($M=4.6$, $SD=.65$) Participant 12 said, "I like the jacket a lot, especially like that the lining fabrics are wicking."

Most fabric related comments that were not color related were directed toward the recycled properties of the fabric. Participant 1 said, "This jacket is definitely something I would be attracted to in the store and then to find out that the fabric is recycled would seal the deal!!" Participant 7 said, "I would have never guessed that it was made from recycled fabric. Very Cool!!" While the comments indicated the women liked that the

jacket used recycled fabric, ($M=3.6$, $SD=.76$) the majority of women found it a nice feature but it was not important in their decision making. The women were asked whether they would spend up to 50 dollars more ($M=3.8$, $SD=.70$) or more than 50 dollars more ($M=2.6$, $SD=1.2$) on a garment that uses recycled fabric. The correlation between the fabric being recycled and paying up to 50 dollars more was significant ($r=.69$, $p=.01$), however, the correlation between the fabric being recycled and paying more than 50 dollars was not significant. This suggests that 50 dollars may be a price threshold for what women will pay for garments made from recycled fabrics.

Three of the prototype evaluation survey statements pertained to the style or image of the jacket. The first referred to how snowboarding specific the garment was ($M=3.2$, $SD=.89$). None of the participants offered an additional comment on the snowboarder style so it is difficult to reason why the women felt fairly neutral about this statement. When asked if the jacket had a feminine appearance ($M=3.9$, $SD=.83$), Participant 3 felt the color is what made it “a lot less feminine.” On the other hand, Participant 14 felt the jacket was, “tailored for a woman.”

The women were asked to rate the uniqueness of the jacket ($M=4.0$, $SD=1.0$). Based on the additional comments the women provided, the originality came from the blue gradation. “I love the color transition down the sides and front zipper from dark to light” said Participant 6. Participant 11 said, “Love the color blocking on the jacket – super original – haven’t seen anything like it”.

The remaining statements asked the women to think of wearing and using the garment. The women indicated that for the most part, this jacket could be worn when not snowboarding ($M=4.1$, $SD=1.0$). “Participant 7 said, “I think that it could be worn

universally for any outdoor sports skiing, snowboarding, etc.” The women felt fairly neutral about wearing this jacket with their existing snowboarding pants ($M=3.2$, $SD=1.5$) but more positively about actually wearing the jacket ($M=4.2$, $SD=.80$).

The final subsection within the jacket one prototype evaluation asked each woman to provide her overall thoughts on the garment. The researcher wanted the participant to be able to add additional information about any of the statements or to just give her overall impression of the garment. While not everyone included their input, the researcher received both positive and constructive feedback from those who did provide it. Participant 5 said, “I like the look of this jacket. The Snowboarder specific clothing on the market currently is too showy and young. I like simplicity and this is simple enough with a little flair for me.” Also with positive feedback, Participant 11 said, “Awesome jacket – def. could see myself buying this.”

Pant One

The second section of the survey asked the women to look at the photos and fabrics corresponding to pant one. See Table 10 for pant one survey results.

Table 10

Pant One Prototype Evaluation Survey Results

Participants (n=14)					
Pant One Features	Mean rating for: Like/ Dislike Agreement/ Disagreement	Standard Deviation	Pant One Features	Mean rating for: Like/ Dislike Agreement/ Disagreement	Standard Deviation
The fit of the pant	3.4	1.21	I like the look and feel of the exterior fabrics	4.2	.70
The length of the pant legs	4.2	.70	I like the look and feel of the lining fabrics	4.6	.51

Pant One Features Continued	Mean rating for: Like/ Dislike Agreement/ Disagreement	Standard Deviation	Pant One Features Continued	Mean rating for: Like/ Dislike Agreement/ Disagreement	Standard Deviation
The length of the rise	3.5	1.09	The lining fabric seems appropriate for a snowboarding pant	4.6	.51
Pant leg shape	3.8	1.05	It is important to me that this snowboarding pant is made from recycled fabric	3.5	1.02
It appears I could layer comfortably underneath these snowboarding pants	4.3	.73	Because this pant uses recycled fabric, I would be willing to spend up to \$50 more for it	3.9	.95
Pocket placement	4.4	.50	Because this pant uses recycled fabric, I would be willing to spend more than \$50 more for it	2.5	1.16
Vent placement	4.2	.58	The style of this pant is snowboarder specific	3.6	1.02
The vents appear to be a good size	4.2	.80	The style of this snowboarding pant has a feminine appearance	3.8	.97
Knowing the waterproof rating of the fabrics used in this pant is important	4.5	.76	This pant is unique compared to other snowboarding pants I have seen	3.6	.85
Knowing this snowboarding pant is fully seam sealed is important to me	4.3	.99	I would wear this pant when I was not snowboarding	2.3	1.06
Exterior fabric colors	3.9	1.14	I would wear this pant with my existing snowboarding jacket	3.4	1.45
Lining fabric colors	4.4	.84	I could see myself wearing this snowboarding pant	3.6	1.34

For pant one, the women rated statements that were pant specific but the same or similar to those statements rated for jacket one. Many of the prototype evaluation survey comments indicated the women were not fans of the fit of pant one ($M=3.6$, $SD=1.2$). Participant 14 said the pants were, “A little too bulky up top (not fitted). Not a huge fan of the color.” Participant 3 said:

The fit of the pant seems really bunchy at the hips/thighs on this model and doesn't look appealing to her butt at all. It's kind of a mix of fit between baggy and fitted, I'd say pick one and stick with it. But yeah too much bulk at the thighs on the pants.

As part of the fit the women were asked to rate the pant leg shape ($M=3.8$, $SD=1.1$) and pant leg length ($M=4.2$, $SD=.70$). The comments and ratings indicated the pant leg length was preferred over the leg shape. “The length looks like it would be good even on some long legs, yet tailored enough not to drag” said Participant 6. Participant 7 agreed, “The length is perfect. I like a fit that when you bend over, your pants don't rise up way over your boots.” While no one specifically mentioned the pant leg shape in their additional explanations, the comments regarding fit indicate the women disliked the hip and crotch area of the garment and not necessarily the lower pant leg

The rise of pant one was a feature women were not fond of ($M=3.5$, $SD=1.1$). Participant 12 said, “I really like everything about these pants except that the rise seems really saggy/low and that might bother me.” Two other participants commented on the pant rise stating it looked, “a little high” (Participant 11) and the “hip to crotch to leg width looks a little off” (Participant 10). Also pertaining to fit, the participants were asked to rate how comfortably they felt they could layer underneath the garment ($M=4.3$,

$SD=.73$). Consistent with comments that pant one was too baggy, the results show this allowed for the wearer to layer underneath them.

The pockets on pant one were designed to be traditional, flapped cargo pockets on the thigh and the views about their placement were mixed ($M=4.4$, $SD=.50$). The average rating given by the women was fairly positive however the comments provided were mainly negative. One participant who did not particularly like the pockets said, “I am not a fan of pockets that are not outlines. I like the flaps but I like to see the extension of the whole pocket so its (sic) not just a flap on the butt” (Participant 10). All other comments provided regarding pocket one addressed the colors.

Participants rated the vent size ($M=4.2$, $SD=.80$) and the vent placement ($M=4.2$, $SD=.81$). The placement of the vents on pant one were in accordance with the industry norm of placing the vent on the inside of the legs. None of the participants comment on the placement but of the vent size, Participant 10 said, “With the leg vents I would double the opening so they go down a little farther. They look a little too small to me in the picture.”

The women’s thoughts on the colors used for the exterior ($M=3.9$, $SD=1.14$) and lining fabrics ($M=4.4$, $SD=.84$) were also analyzed. The women’s comments suggested the outside navy color used in pant one was the least popular of any fabric color rated. Participant 15 said, “I don’t care for navy blue (sorry) but I do like the pop of light blue!” Participant 3 on the other hand did like the navy but did not like the accent color, “I like the color and feel of the exterior but the bright blue pocket lining isn’t that appealing.”

The actual look and feel of the outer fabrics ($M=4.2$, $SD=.70$) received a lower rating than the look and feeling of the lining fabric ($M=4.6$, $SD=.51$). The participant’s

rating of the lining fabric was significantly higher than that of the outer fabric ($t(13)=-2.69, p=.02$). Based on the written responses, some participants felt the fleece lining in the back of the pants was an appropriate fabric ($M=4.6, SD=.51$). “I also really like the feel of the fuzzy gray fleece on the inside” said Participant 12. Participant 6 agreed, “I really like the fuzzy lining too!”

When asked about the waterproof rating in the garment participants indicated in the prototype evaluation survey that it was important to know the fabric rating ($M=4.5, SD=.76$). As with all the garments, although the actual waterproof rating was not known but the fabrics did have a level of water resistance suitable for the use in ski and snowboard clothing. The women rated the importance of the waterproofing ($M=4.5, SD=.76$) higher than that of the seam sealing ($M=4.3, SD=.99$) but this difference was not statistically significant. The minor difference in rating may be due to the fact that the women may not know about or understand the need for seam sealing.

The participants were asked to rate the importance of the use of recycled fabric ($M=3.5, SD=1.02$) and how much they would spend on a garment that uses recycled fabric. For pant one, the participants indicated they would be willing to spend up to fifty dollars more for this pant since it was made from recycled material, ($M=3.9, SD=.95$). However, the rating drops significantly when the women rated a statement asking if they would spend more than fifty dollars more on the garment ($M=2.5, SD=1.16$). The correlation between recycled fabric and spending up to 50 dollars ($r=.72, p<.01$) was significant but the correlation between the recycled fabric and spending more than 50 dollars more was not significant. As with jacket one, 50 dollars appears to be a spending threshold.

Three of the prototype evaluation survey statements made reference to the style or image of the pant. The women rated how snowboard specific the pant was ($M=3.6$, $SD=1.02$), how feminine its appearance was ($M=3.8$, $SD=.97$) and how unique it was ($M=3.6$, $SD=.85$). Overall since the participants were less fond of pant one, it makes sense that the scores for the style or image of the pant are fairly neutral.

The remaining statements asked the women to agree or disagree with how they would personally use the garment. When asked if the women felt this pant could be worn outside of snowboarding, they gave the pant a low ranking ($M=2.3$, $SD=1.07$). One of the few who would wear her pants outside of snowboarding said, “I usually don’t tend to wear snowboarding pants around town, but would definitely wear these for other outdoor winter activities” (Participant 9). The women felt fairly neutral about wearing this snowboarding pant with their current snowboarding jacket ($M=3.4$, $SD=1.45$). The women gave a slightly higher mean rating when asked if they could see themselves wearing this pair of pants, ($M=3.6$, $SD=1.34$) but it still indicated the women felt neutral about the pants in general.

The final subsection within the pant one section asked each woman to provide her overall thoughts on the garment. Both the comments and the survey results showed this was the least popular of the garments and most of the feedback was used to support the findings above.

Outfit One

For the third section of the prototype evaluation survey, the women looked at the fabric swatches for both jacket one and pant one and looked at the photos showing outfit one. See Table 11 for outfit one survey results.

Table 11

Outfit One Prototype Evaluation Survey Results

Participants (n=14)		
Outfit One Features	Mean rating for: Agreement/ Disagreement	Standard Deviation
I like the style of the jacket and pant together	4.1	1.04
I like the colors of the jacket and pant together	4.2	1.01
I would wear this jacket and this pant together	4.0	1.15
I would wear only the jacket	3.3	1.03
I would wear only the pant	2.8	.73
I would purchase these garments as an outfit	3.9	1.12

The women rated only six aspects of each outfit. For outfit one, the comments and ratings suggest the women liked outfit one ($M=4.1$, $SD=1.04$). Participant 11 said, “I think the pants and jacket go very well together – good fabric and color combination.” The women rated the colors with the highest mean of all outfit one statements ($M=4.2$, $SD=1.01$). Participant 1 said, “I love the outfit!!! It isn’t too flashy at all but still super stylin (sic). The colors work really well together and the details aren’t over the top but exactly what snowboarders/skiers want.” The initial interview and survey illustrated how different each woman’s preferred colors were and as expected, not all participants liked the colors used in this outfit. Of the jacket and pant, Participant 3 said, “They don’t really look appealing together.” Participant 10 said of the color combination, “I am not a huge fan of the colors as is together.”

The participants rated statements about wearing the jacket and the pant together as

well as individually. When rating the garments together as an outfit, the participants agreed they would wear the jacket and pant together ($M=4.0$, $SD=1.15$) and just the jacket ($M=3.3$, $SD=1.03$). However, they would not wear the pant only ($M=2.8$, $SD=.73$) supporting the findings from pant one suggesting they were not fond of them.

Finally, the women were asked about purchasing the garments together as an outfit ($M=3.9$, $SD=1.12$). Overall, the women’s ratings indicated that the majority of participants did like and would purchase this outfit. Participant 6 said, “Love that the dark color navy on the jacket feeds into the navy on the pants. Makes it match but keeps it from looking matchy matchy.” Participant 9 also liked the outfit, “I would wear them together or as separates. Super cute outfit!”

Jacket Two

The fourth section of the survey asked the women about their opinion of jacket two. They were asked to look at jacket two fabric swatches and photographs. See Table 12 for the survey results for jacket two.

Table 12

Jacket Two Prototype Evaluation Survey Results

Participants (n=14)					
Jacket One Features	Mean rating for: Like/ Dislike Agreement/ Disagreement	Standard Deviation	Jacket One Features	Mean rating for: Like/ Dislike Agreement/ Disagreement	Standard Deviation
The fit of the jacket	4.8	.43	I like the look and feel of the exterior fabrics	4.9	.36
The length of the jacket	4.8	.43	I like the look and feel of the interior fabrics	4.2	1.12
The length of the sleeves	4.8	.43	The lining fabric seems appropriate for a snowboarding jacket	4.5	.76

Jacket One Features Continued	Mean rating for: Like/ Dislike Agreement/ Disagreement	Standard Deviation	Jacket One Features Continued	Mean rating for: Like/ Dislike Agreement/ Disagreement	Standard Deviation
It appears I could layer comfortably underneath this snowboarding jacket	4.8	.43	It is important to me that this snowboarding jacket is made from recycled fabric	3.6	1.02
Outside pocket placement	4.6	.50	Because this jacket uses recycled fabric, I would be willing to spend up to \$50 more for it	4.1	.73
Inside pocket placement	4.4	.84	Because this jacket uses recycled fabric, I would be willing to spend more than \$50 more for it	2.9	1.35
Vent placement	4.4	.76	The style of this jacket is snowboarder specific	3.5	1.29
The vents appear to be a good size	4.4	.65	The style of this snowboarding jacket has a feminine appearance	4.5	.65
Knowing the waterproof rating of the fabrics used in this jacket is important	4.6	.64	This jacket is unique compared to other snowboarding jackets I have seen	4.4	.65
Knowing this snowboarding jacket is fully seam sealed is important to me	4.4	.85	I would wear this jacket when I was not snowboarding	4.8	.43
Exterior fabric colors	4.8	.58	I would wear this jacket with my existing snowboarding pants	4.7	.47
Interior fabric colors	4.5	.94	I could see myself wearing this snowboarding jacket	4.9	.36

Jacket two was by far the most popular of all four garments. This jacket received the most positive ratings and comments from the participants. Reflecting many other participant’s views, Participant 2 said, “This jacket is awesome, love that its black but still has a detail to it.”

The participants felt favorably about jacket two's fit ($M=4.8$, $SD=.43$), length ($M=4.8$, $SD=.43$) and sleeve length ($M=4.8$, $SD=.43$). "The fit looks better than jacket #1 and more proportioned to a female rider." Participant 15 said, "I love the outside shape." The researcher designed jacket two to have a more tailored look but were asked to rate how comfortably they felt they could layer underneath, the participants again gave a positive rating ($M=4.8$, $SD=.43$).

There was no statistical difference between the pocket placement ratings and the participants provided no additional comments about them. Vent placement ($M=4.4$, $SD=.76$) and vent size ($M=4.4$, $SD=.65$) were two other jacket features that were designed to be different between the jackets. The vents in jacket two were designed to be more aligned with underarm vents traditionally seen in jackets in the industry. They were longer and in the underarm seam as opposed to the front of the body.

The exact waterproof rating for the fabric used in jacket two was unknown. The participants rated the importance of knowing the waterproof rating ($M=4.6$, $SD=.65$) and the importance of it being seam sealed ($M=4.4$, $SD=.85$) There was no statistical difference between these ratings indicating that they rated both as important functional features for the jacket.

As mentioned, this jacket was the most popular among the women and based on the additional feedback, the reason attributed to the black color and black detailing. The participants gave the outside fabric color ($M=4.8$, $SD=.58$) and fabric look and feel ($M=4.9$, $SD=.36$) high ratings and positive comments. Participant 7 said, "I like how it is all black but still has some variety in texture that gives a minor accent different areas." Participant 6 agreed, "This jacket has all the right elements to keep it simple and classic

but far from boring.”

The multi-color lining of jacket two was liked but not as much as the monochromatic black exterior. Although some participants felt it was a great design detail, others were not at all fond of the colors. “Not sure if I love the inside fabric” said Participant 15. Participant 12 added, “I tend to be more attracted to blue/purple/green and the lining has a lot of orange/red/yellow.” Although the lining color received a lower rating ($M=4.5$, $SD=.94$) than the exterior, the difference between the outside color and lining color was not statistically significant suggesting it was still popular. Participant 10 said, “I love the color pop with the lining.” “The lining is awesome” said Participant 6, and “really cool liner fabric” said Participant 11. The women rated the lining fabric as appropriate for a snowboarding jacket ($M=4.5$, $SD=.76$).

For jacket two, none of the participants made comment to the recycled materials or environmental friendliness of the jacket. In fact, almost every comment was purely aesthetic related. From the prototype evaluation survey ratings the participants rated the importance neutral ($M=3.6$, $SD=1.02$). When rating how much they would spend on a garment that uses recycled fabric, participants indicated they would be willing to spend up to fifty dollars more for this jacket ($M=4.1$, $SD=1.15$). These variables have a significant correlation ($r=.56$, $p=.04$). However, the participant agreement drops dramatically when she is asked to spend more than fifty dollars more ($M=2.9$, $SD=1.35$) and was not significantly correlated.

Three of the prototype evaluation survey statements referred to the style or image of the jacket. When asked if it the women felt the style of the jacket was snowboard specific, the response was fairly neutral ($M=3.5$, $SD=1.29$). Many of the additional

comments made reference to the fact that because of the monochromatic color, this jacket could be worn outside of snowboarding. Participant 8 said, “I would wear a coat like this all the time- snowboarding, but also just as a coat in the winter.” When rating the feminine appearance, ($M=4.5$, $SD=.65$) the positive rating was supported by the comments. Participant 15 said, “I love the outside shape. Very feminine (sic) fitting when looking at it from the back. Looking feminine is very important to me, I don’t want to look like I shop in the boys section.”

The remaining statements asked the women to agree or disagree with how they would use the garment. The women’s ratings suggested they felt jacket two could be worn outside of snowboarding ($M=4.8$, $SD=.43$). Participant 15 said, “I would wear this snowboarding and out on the town. Since I don’t want to buy multiple winter coats, this makes sense for me.” Also feeling this jacket was versatile, Participant 1 said, “I would absolutely wear this jacket for other things besides just riding.” Jacket two received a high rating when they were asked about wearing this jacket with their current snowboarding pants ($M=4.7$, $SD=.47$). Participant 1 said, “This jacket would go with all my other snowboarding gear.” Participant 11 said, “It would go well with other snowboarding pants that I already own.” The women’s responses indicated they could see themselves wearing this jacket ($M=4.9$, $SD=.36$). This rating confirms other data that suggests this jacket was the most popular.

The final subsection within the jacket one section asked each woman to provide her overall thoughts on the garment. The majority of comments were extremely positive and focused mainly on the black, blocked detailing. The comments were used to support the reported prototype evaluation survey results.

Pant Two

The fifth section of the prototype evaluation survey asked about pant two. The women were asked to use the photos and fabric swatches associated with pant two. See Table 13 for survey results from the first two subsections of the survey.

Table 13

Pant Two Prototype Evaluation Survey Results

Participant (n=14)					
Pant Two Features	Mean rating for: Like/ Dislike Agreement/ Disagreement	Standard Deviation	Pant Two Features	Mean rating for: Like/ Dislike Agreement/ Disagreement	Standard Deviation
The fit of the pant	3.8	.89	I like the look and feel of the exterior fabrics	4.6	.85
The length of the pant legs	4.1	.77	I like the look and feel of the lining fabrics	4.8	.43
The length of the rise	3.4	1.22	The lining fabric seems appropriate for a snowboarding pant	4.9	.36
Pant leg shape	3.9	1.07	It is important to me that this snowboarding pant is made from recycled fabric	3.6	1.02
It appears I could layer comfortably underneath these snowboarding pants	4.0	.68	Because this pant uses recycled fabric, I would be willing to spend up to \$50 more for it	4.0	.78
Pocket placement	4.4	.63	Because this pant uses recycled fabric, I would be willing to spend more than \$50 more for it	2.7	1.14
Vent placement	4.2	.70	The style of this pant is snowboarder specific	3.4	1.02
The vents appear to be a good size	4.4	.50	The style of this snowboarding pant has a feminine appearance	4.3	.83
Knowing the waterproof rating of the fabrics used in this pant is important	4.7	.47	This pant is unique compared to other snowboarding pants I have seen	3.9	.92

Pant Two Features Continued	Mean rating for: Like/ Dislike Agreement/ Disagreement	Standard Deviation	Pant Two Features Continued	Mean rating for: Like/ Dislike Agreement/ Disagreement	Standard Deviation
Knowing this snowboarding pant is fully seam sealed is important to me	4.4	.85	I would wear this pant when I was not snowboarding	2.5	1.34
Exterior fabric colors	4.6	.85	I would wear this pant with my existing snowboarding jacket	4.2	.97
Lining fabric colors	4.8	.43	I could see myself wearing this snowboarding pant	4.1	.86

Comments regarding pant two were mixed. While it was more popular than pant one, the fit of the pant was still the major concern expressed by the participants ($M=3.8$, $SD=.89$). Participant 12 said, “These pants look a little tighter than the others and they have a really high waist so I might be worried about feeling comfortable/having my movement restricted.” Participant 5 said, “It may be the fit on the model, but the rise looks too high for a short gal like myself.” Participant 10 also felt the rise of the pant was off, “the only thing I can see from the photos might be the rise. It looks a bit long.” The length of the rise was the major fit concern ($M=3.4$, $SD=1.2$). One participant felt the longer rise could be a benefit, “I think the rise is a little high but when you are seated on the snow strapping in, you wouldn't (sic) have to worry about snow sneaking in” (Participant 6).

The pant leg length was the fit feature that was rated the highest for pant two ($M=4.1$, $SD=.77$). Participant 10 was the only to comment about the length of the pant legs. “Not a fan of the length,” she said, “not sure of your height but I like having pants a little longer so that when your knees are bent or doing tricks they don't rise up over the boots.” The study participants gave the pant leg shape a slightly lower rating than that of

the length ($M=3.9$, $SD=1.1$). Participant 2 said, “I would personally have liked to see them with a little bit wider legs”.

The pockets on this pant were placed in traditional places but they were designed to be sleek and non-obtrusive with no flaps ($M=4.4$, $SD=.63$). A fan of the pockets, Participant 6 said, “The accent on the pocket zips give it a nice tailored pant finish.” “I like the side pocket especially on a tighter pant” said Participant 4. Participant 10, not a fan of the pockets said, “i (sic) don't like seamless pockets on the butt. I like seeing the pocket.”

The placement of the vents on pant two were on the inside of the legs which is standard in most snowboarding clothing ($M=4.2$, $SD=.70$). The researcher created the vents larger on pant two than on pant one for some variation ($M=4.4$, $SD=.50$). Participant 4 said, “I would want... the vents to be higher up and maybe a bit smaller.”

The women’s thoughts on the colors used for the exterior ($M=4.6$, $SD=.85$) and lining fabrics ($M=4.8$, $SD=.43$) were also analyzed. Overall, the women were fans of both the gray pinstripe exterior fabric and bright yellow/green lining and accent fabrics. Overall, the gray exterior fabric received positive ratings. “I like the pin striped fabric choice. I like softer, muted tones” said Participant 7. Participant 15 said, “I love the pin stripe. It’s a great detail that makes a big difference. I also love the grey color with a fun pop of green, very cute!!!!”

The bright green/yellow lining and accent fabrics were very popular with the women. Of the bright green accents, Participant 6 said, “At first I thought the bright green might be a bit much but it is carefully placed that you could choose to have more or less flare.” Participant 10 also liked the bright accent color but did not care for the gray

exterior, “I do like contrasting pops of color on pants especially on inside pockets and such. The grey looks similar to the color on jacket one and i (sic) think it is too basic of a color.”

Consistent with the positive ratings for the lining color, the women gave high ratings to the look and feel of the lining fabrics ($M=4.8$, $SD=.43$) and lining fabric appropriateness ($M=4.9$, $SD=.36$). Even though the look and feel of the exterior fabrics received a slightly lower rating ($M=4.5$, $SD=.85$) than the lining, the fabrics and colors used in pant two were popular overall. The participants felt it was important to know the waterproof rating ($M=4.7$, $SD=.47$) and to have seam sealing ($M=4.4$, $SD=.85$) but participants did not ever know the fabric’s waterproof rating.

None of the women commented about the environmental friendliness of pant two. The importance of the use of recycled fabric for this garment was fairly neutral ($M=3.6$, $SD=1.0$). Participants were willing to spend less than 50 dollars more for pant two ($M=4.0$, $SD=.95$) but their agreement dropped considerably when they rated their willingness to spend more than 50 dollars more ($M=2.7$, $SD=1.1$).

Regarding the style or image of the pant, participants were neutral on how snowboarding specific it was ($M=3.4$, $SD=1.0$). This pant was slimmer and did not have the traditional cargo pocket flaps which may have influenced the rating. The pants were rated as more feminine ($M=4.3$, $SD=.83$) than unique ($M=3.9$, $SD=.92$). “I do think the look of this pant is pretty basic” said Participant 10.

The final statements asked the women to agree or disagree with how they would use pant two. Very few participants agreed this pant could be worn outside of snowboarding ($M=2.6$, $SD=1.3$). The ratings were higher when the women rated if they

would wear this pair of pants with their current snowboarding jacket ($M=4.2$, $SD=.97$) and if they would wear the pant ($M=4.1$, $SD=.86$). Participant 1 said the pants would, “go very well with other gear that I have.” “This is totally something I would buy” said Participant 7.

The final subsection within the pant one section asked each woman to provide her overall thoughts on the garment. Both the comments and the survey results showed this pant was popular overall but it still received low ratings based on fit. Most of the comments were used to support the findings

Outfit Two

The sixth and final section of the prototype evaluation survey addressed jacket two and pant two together as an outfit. See Table 14 for the results of the survey.

Table 14

Outfit Two Prototype Evaluation Survey Results

Participants (n=14)		
Outfit Two Features	Mean rating for: Agreement/ Disagreement	Standard Deviation
I like the style of the jacket and pant together	4.7	.63
I like the colors of the jacket and pant together	4.6	.65
I would wear this jacket and this pant together	4.5	.88
I would wear only the jacket	4.2	.83
I would wear only the pant	3.2	1.09
I would purchase these garments as an outfit	4.2	.99

The second subsection pertaining to outfit two asked the women to give their overall thoughts on jacket two and pant two together as outfit two. Based on the scores and comments, the participants liked this second outfit more than the first outfit. “Much better look and more fitted than the first outfit” said Participant 3.

The participants gave overall positive ratings to outfit two and described it as, “mature,” (Participant 6) “sophisticated,” (Participant 11) and not, “too poofy” (Participant 15). The style of the outfit received high ratings from the participants ($M=4.7$, $SD=.63$). “I really like the outfit – fits my personal style well” said Participant 11.

The participants had positive comments and ratings for the colors as well ($M=4.6$, $SD=.65$). “Even though the colors are dark, they compliment (sic) each other quite nicely. The bright material is on the inside which is nice because it doesn’t overwhelm the outfit but gives it a nice touch” said Participant 3. Participant 12 felt the pants were slightly dull, “It kind of needs a pop of color” she said.

As mentioned, the lining in jacket one received mixed reviews. Referring back to the individual garments, Participant 15 said, “The only thing I would change is the inside color of the jacket.” Participant 10 liked the jacket lining but offered thoughts on different accent colors, “I really loved the lining of the jacket and I think it would be cool to tie in some of the purples or teals into the colors for the pants.” Overall, the participants liked the colors of the garments. Participant 7 said, “I like softer colors more than bright colors so this fits me and I would totally pick this outfit off the rack in a store.”

The participants rated how much they agreed or disagreed with statements about

wearing the jacket and the pant together or individually. When rating the garments together as an outfit, most participants agreed they would wear the jacket and pant together ($M=4.5$, $SD=.88$). They rated wearing just the jacket only slightly lower ($M=4.2$, $SD=.83$) than the outfit as a whole and the women rated wearing just the pants neutrally ($M=3.2$, $SD=1.1$) suggesting they felt the garments went well together. Participant 9 said, “This is such a cute outfit! I would wear the pieces together or separate!”

Finally, the women were asked to rate their level of agreement to a statement about purchasing the garments together as an outfit. Overall, the women’s mean rating indicated the majority of participants did like this outfit ($M=4.2$, $SD=.99$). “I love this outfit! I would buy it and wear it” said Participant 2. Participant 15 said, “Love this outfit! I would buy it.”

Side by Side Evaluations

After evaluation of each garment individually, the ratings for the jackets, pants, and outfits were compared side by side. Each of the statements the participants evaluated in the prototype evaluation survey was categorized as functional, expressive, aesthetic, or environmental. Although some statements fit into more than one category the researcher best divided them to fit into one of the four categories. See Table 15 for how the prototype evaluation statements were categorized.

Table 15

FEAN Categories

Functional	Expressive	Aesthetic	Environmental
The fit of the jacket/pant	I would wear this jacket/pant when I was not snowboarding	Exterior fabric colors	It is important to me that this snowboarding jacket is made from recycled fabric
The length of the jacket body/pant legs	The style of this jacket/pant is snowboarder specific	Interior fabric colors	Because this jacket uses recycled fabric, I would be willing to spend up to \$50 more for it
The length of the sleeves	The style of this snowboarding jacket/pant has a feminine appearance	I like the look and feel of the exterior fabrics	Because this jacket uses recycled fabric, I would be willing to spend more than \$50 more for it
Outside pocket placement	This jacket/pant is unique compared to other snowboarding jackets/pants I have seen	I like the look and feel of the interior fabrics	
Inside pocket placement- Jacket only	I could see myself wearing this snowboarding jacket/pant	The pant leg shape	
Vent placement		The pant rise	
The vents appear to be a good size		I would wear this jacket/pant with my existing snowboarding pants/jacket	
Knowing the waterproof rating of the fabrics used in this jacket/pant is important			
Knowing this snowboarding jacket/pant is fully seam sealed is important to me			
It appears I could layer comfortably underneath this snowboarding jacket/pant			
The lining fabric seems appropriate for a snowboarding jacket/pant			

Jacket side by side evaluation. Based on the survey responses and additional comments provided, jacket two was rated higher than jacket one in all categories except the look, feel, and appropriateness of the lining fabrics. Table 16 has the side by side evaluations for jacket one and jacket two.

Table 16

Difference between Jacket One and Jacket Two Prototype Evaluation Survey Results

Participants (n=14)			
	Mean Difference	Standard Deviation	Sig. (2-tailed)
Functional			
Fit	-.43	.65	.03
Body length	-.29	.73	.16
Sleeve length	-.79	.97	.01
Layer comfortably	-.14	.36	.17
Outside pocket placement	-.57	.65	.01
Inside pocket placement	-.21	.80	.34
Vent placement	-.50	1.09	.11
Vent size	-.57	1.28	.12
Knowing waterproof rating is important	.00	.39	1.0
Knowing this jacket is fully seam sealed is important	-.21	.43	.08
Aesthetic			
Exterior fabric colors	-.64	.84	.01
Interior fabric colors	-.21	1.19	.51
Look and feel of exterior fabrics	-.14	.36	.17
Look and feel of interior fabrics	.36	1.39	.36
The lining fabric seems appropriate	.07	.92	.78
Environmental			
It is important this jacket is made from recycled fabric	.00	.39	1.0
Because of recycled fabric, I would spend up to \$50 more for it	-.29	.61	.10
Because of recycled fabric, I spend more than \$50 more for it	-.21	.70	.27

Expressive			
The style is snowboarder specific	-0.29	.91	.26
The style has a feminine appearance	-.57	.51	<.01
This jacket is unique	-.36	.93	.17
I would wear this jacket when not snowboarding	-.71	.82	.01
I would wear this jacket with my snowboarding pants	-1.50	1.61	<.01
I could see myself wearing this snowboarding jacket	-.64	.63	<.01

The fit of jacket one was designed to be baggier and less shaped than jacket two. Based on the responses, the participants noticed this and showed a favor toward a more fitted, feminine shaped jacket. The mean ratings for fit ($M=-.43$, $p=.03$) and femininity ($M=-.57$, $p<.01$) were significantly different from jacket one to jacket two. The differences in the body length, sleeve length, and ability to layer from jacket one to jacket two were not significant.

The outside pockets on the two jackets were designed differently and thus it was expected for the difference in participant's ratings to be statistically significant ($M=-.57$, $p=.01$). Jacket one had protective shields while the pockets on jacket two had invisible zipper closures. The pockets on jacket one were slightly higher and had larger openings than jacket two. As Participant 10 mentioned, "The format (sic) pockets look a little high." The inside pockets, were placed in about the same location on the same side of the jacket and the difference in the mean scores was not statistically significant.

The researcher designed the venting on the jackets to be slightly different. It was hoped the vents at the front of jacket one would provide more air flow than the underarm vents on jacket two and therefore did not need to be as large. The difference in size was

due to offer the women different options. In jacket one, the five inch long vents were located more toward the front of the garment and in jacket two the twenty one inch long vents were located in the seam under the arms. The differences in scores for vent placement and vent size from jacket one to jacket two were not statistically significant.

Participant scores on knowing the waterproof rating did not change from jacket one to jacket two and were not statistically significant. The scores may be the same because the women feel the same about waterproofing regardless of whether or not they liked a jacket. The differences in the ratings for the importance of seam sealing were also not significant.

The differences in the outside fabric colors were statistically significant ($M=-.64$, $p=.01$). This was supported by the comments from the prototype evaluation survey in which the women described the gray as “drab”, (Participant 12) “too basic”, (Participant 10) and, “a lot less feminine” (Participant 3) and the black was described as “gorgeous”, (Participant 1) “awesome”, (Participant 2) and, “classic” (Participant 6). The participants liked the simplicity of the black color but they also liked the variety of black fabrics and textures used for detailing in jacket two.

The difference in the ratings of the look and feel of the outside fabrics, however were not statistically significant. Since the fabrics were donated by outdoor clothing companies, they were comparable to what is used in garments currently available. The difference in the ratings for the color or look and feel of the lining fabrics were not statistically significant between jacket one and jacket two.

The difference in the ratings for the importance of the use of recycled fabrics in the garments was not statistically significant. Also not statistically significant were the

differences between the participants being willing to spend up to fifty dollars more or more than fifty dollars more for the jacket.

When it came to the style for jacket one and jacket two, the difference in participant ratings showed there was no statistical difference between their ratings for how snowboard specific the garment was or how unique it was. The style rating that was statistically significant was that of the jacket femininity ($M=-.57, p<.01$). Participant 3 said she felt jacket two was “more proportioned to a female rider” and Participant 15 said it was “very feminine fitting”.

When the statements in the survey became more personal and asked the women about how they would actually wear the garments, there was a statistically significant difference in the scores. The participants indicated they would be more willing to wear jacket two than jacket one when not snowboarding ($M=-.71, p=.01$). Participant 15 felt this jacket was versatile enough to wear “snowboarding and out on the town.” The women indicated they would be more willing to wear jacket two with their existing snowboarding pants than jacket one ($M=-1.50, p<.01$). The researcher attributes the higher rankings mainly to color and fit. Even though jacket one is a neutral gray, the blue detailing on the side may have been too colorful and would prevent the women from wearing this with an existing pair of snowboarding pants. Also, the fit of jacket one was baggier and therefore may not have been a style that was compatible with their existing snowboarding pants. The black color and more feminine fit of jacket two was more versatile for the women allowing them more options for multiple uses.

The final survey statement asked if the participant could see herself actually wearing the garment. The difference in the mean scores was statistically significant and supported the rest of the data showing jacket two was more popular ($M=-.64, p<.01$).

Pant side by side evaluation. Based on the survey results and comments, pant two was more popular and preferred than pant one. See Table 17 for the pant one and pant two evaluation results.

Table 17

Difference between Pant One and Pant Two Prototype Evaluation Survey Results

Participants (n=14)			
	Mean Difference	Standard Deviation	Sig. (2-tailed)
Function			
Fit	-.43	1.22	.21
Pant leg length	.07	.83	.75
Rise length	.07	1.59	.87
Layer comfortably	.29	.83	.22
Outside pocket placement	.00	.78	1.0
Vent placement	.00	.55	1.00
Vent size	-.14	.86	.55
Knowing waterproof rating is important	-.21	.58	.19
Knowing this pant is fully seam sealed is important	-.14	.66	.44
Aesthetic			
	Mean Difference	Standard Deviation	Sig. (2-tailed)
Exterior fabric colors	-.64	.93	.02
Interior fabric colors	-.43	.65	.03
Look and feel of exterior fabrics	-.36	.74	.10

Look and feel of interior fabrics	-.21	.43	.08
The lining fabric seems appropriate	-.29	.47	.04
Environmental			
It is important this pant is made from recycled fabric	-.07	.47	.58
Because of recycled fabric, I would spend up to \$50 more for it	-.14	.86	.55
Because of recycled fabric, I spend more than \$50 more for it	-.21	.58	.19
Expressive			
The style is snowboarder specific	.14	.95	.58
The style has a feminine appearance	-.50	1.09	.11
This pant is unique	-.36	.63	.06
I would wear this pant when not snowboarding	-.29	1.49	.49
I would wear this pant with my snowboarding jacket	-.79	1.42	.06
I could see myself wearing this snowboarding pant	-.50	1.29	.17

The fit of the pants were designed to be slightly different. Pant one was designed to be slightly baggier and to have more traditional snowboard pant elements such as flaps on the cargo pockets. Pant two was designed to be sleeker and fitted with detailing that was simple and clean.

Both pants were noted as having fit issues in different ways. Based on the additional comments provided in the prototype evaluation survey, the participants preferred the fit of pant two. However, the rankings in the prototype evaluation survey

showed the difference was not statistically significant. Commenting on pant two, Participant 3 said, “The pant is better fitting than pant #1 but it still looks weird.”

In comparing the survey responses, there were no statistical differences in the fit ratings for pant leg length, rise length, leg shape, and ability to layer.

The pockets on the two pairs of pants had similar placement but different pocket detailing. Therefore, it was expected and found that the pocket placement rating would not be statistically different from pant one to pant two and they were not.

The vent placement on the two pairs of pants was also the same and showed no statistically significant differences in the ratings. Both pairs were designed to have the vents on the inside of the leg which is standard among most snowboarding pants available. The vent size in pant one was seven and a half inches and the vents in pant two were twelve inches. The difference in size did not contribute to a significant rating difference.

The mean scores given to the statements about the importance of knowing the waterproof rating and having the seam sealing for the pants were not statistically significantly different. This was expected because although the waterproofing may be different, the importance of knowing it would stay the same.

Based on the prototype evaluation survey comments, it was expected that the exterior fabric color of pant one would be statistically different than pant two and it was. ($M=-.64, p=.02$). Although the color ratings showed a significant difference, the ratings given to the look and feel of the fabrics were not significantly different. Several women did not like the exterior navy fabric on pant one but they did like the light blue lining color. Based on the comments provided in the prototype evaluation survey, the light blue

was not as popular as the bright yellow/green that was used in pant two. The ratings from the survey support these comments and the difference in the ratings between the two pant lining colors was significant ($M=-.43$, $p=.03$). The participants did not rate the look and feel of the lining fabrics as different. As for the appropriateness of the lining fabrics, pant two scored higher and was statistically different than for pant one ($M=-.29$, $p=.04$).

Looking at the environmental preferences between the two pants, there were no statistically significant differences between the use of recycled fabrics or whether they would be willing to pay more. The pants both used recycled fabrics so it was expected the participants would give similar ratings to the environmental properties of the pants.

When it came to the style ratings for pant one and pant two, it was expected that pant one would rate higher as a snowboard specific pant due to its design characteristics (baggy fit and flapped cargo pockets). However, no statistical significant difference was found between the ratings. Also, it was expected that pant two would rate as more feminine than pant one because it was designed to be more form fitting and sleek. Again, statistical analysis did not show a significant difference. The uniqueness ratings between the pants were also not significantly different.

When the statements asked the women about how they would wear the snowboarding pants, there were no statistically significant differences in the scores between pant one and pant two. Statistical analysis showed that the women had the same attitudes towards wearing the pant when they were not snowboarding and wearing the pant with her existing jacket. The final survey statement pertained to the participant seeing herself wearing the pants. The difference in the mean scores was not statistically significant.

Outfit side by side evaluation. Based on the prototype evaluation survey results and comments, outfit two was more popular than outfit one. See Table 18 for the evaluation results comparing outfit one to outfit two.

Table 18

Difference between Outfit One and Outfit Two Prototype Evaluation Survey Results

Participants (n=14)			
	Mean Difference	Standard Deviation	Sig. (2-tailed)
Style of pant and jacket together	-.62	.77	.01
Colors of pant and jacket together	-.38	.87	.14
Would wear pant and jacket together	-.54	.78	.03
Wear only jacket	-.92	1.19	.02
Wear only pant	-.46	1.51	.29
Would purchase as an outfit	-.23	.93	.39

For the style of the outfit together, outfit two received higher ratings than that of outfit one ($M=-.62$, $p=.01$). Based on the comments from the prototype evaluation survey, it would be expected that the colors of outfit two would be more popular together than those of outfit one however this was not statistically supported.

The participants were asked if they would wear the pant and jacket together as an outfit, just the jacket or just the pants. Outfit two as a whole was significantly more popular together than outfit one ($M=-.54$, $p=.03$). For the individual garments, the participants indicated they were significantly more willing to wear jacket two than jacket one ($M=-.92$, $p=.17$) but the differences between the pants were not statistically

significantly different. The difference in participant responses regarding the purchase of the outfits was not statistically significant either.

FEAN Elements.

The last comparison the researcher wanted to make with the prototype evaluation survey data was to find the importance rating the participants gave to the functional, expressive, aesthetic, and environmental elements of the prototype garments. Each statement in the prototype evaluation survey was categorized as functional, expressive, aesthetic, or environmental and the mean average was found. Although some statements fit into more than one category the researcher best divided them to fit into one of the four categories. See Table 15 for how the prototype evaluation statements were categorized. The mean scores from each of the FEAN categories was taken to see which of the four garment components was rated as most important to the participants.

In the initial interview and survey, the women said that function was the most important feature for their snowboarding garments. When the mean scores were found for each of the categories, the functional garment elements ($M=4.4$) had the highest overall mean rating followed by the aesthetic elements ($M=4.3$). In the prototype evaluation survey, there were more statements pertaining to the function of the garment as opposed to any of the other three categories. This was because the women expressed the function of a garment was the most important in the initial interview and survey data.

The mean of the statements pertaining to the garment's expressive elements, were rated lower than that of the functional or aesthetic elements ($M=3.8$). As expected, the environmental statements received the lowest overall ratings from the women ($M=3.4$). Based on the initial survey and interview the participants did not have much

understanding of the environmental aspects of the garments and therefore the rating may have been lower based on their lack of knowledge.

Chapter Five

Discussion

Discussion

Each aspect of this study provided the necessary data to answer the original research questions. The following research questions were used to guide this study:

1. What are the most important functional garment elements a female snowboarding participant desires in female specific sport apparel?
2. What are the most important expressive garment elements a female snowboarding participant desires in female specific sport apparel?
3. What are the most important aesthetic garment elements a female snowboarding participant desire in female specific sport apparel?
4. What environmental elements impact female snowboarding participant's sport apparel choices?
5. Is the inclusion of an environmental garment element to the original Lamb & Kallal (1992) Functional Expressive Aesthetic (FEA) Consumer Needs model applicable? If the inclusion of an environmental garment element is applicable, where is it best located on the model in relation to the other elements?

The researcher used the functional, expressive, aesthetic, and environmental categories to build the initial survey and interview questions. From this data, emerged the themes and subthemes found in Table 7. The researcher used these themes and subthemes

to build both the prototypes and the prototype evaluation survey. Using all this data combined, the researcher has been able to answer the original research questions.

Question One

The first research question asked what functional garment elements were desired by female snowboarders from their snowboarding apparel. Based on the survey and interview the researcher found that the participants desired the elements discussed within the *fit* and *function* themes in Chapter 4, Table 7. *Length, mobility, adaptability, comfort, the performance elements* found in Table 8, *protection & regulation, and durability* were all found to be important functional garment elements. Also, within the color theme, a functional property emerged unexpectedly that also fulfils the functional garment elements desired by the women.

Previous research has focused on the sports of in-line skating, bicycling, sailing, tennis, dance, and golf (Anderson & Cunningham, 1972; Beard, 2008; Chung, 2006; Kinnear, et al, 1974; Laroche, et al, 2001; Minton & Rose, 1997; Mitchka, et al., 2009; Scaturro, 2008) and have all shown function; specifically fit and comfort to be the most significant garment element for women athletes. The function of a snowboarding jacket or pair of pants was expected to be the most important to the study participants and it was. In the initial survey; the women rated it number one among the FEAN garment elements, during the interview the women expressed it their number one consideration and in the prototype evaluation survey the functional elements were rated as important.

The participants were also specific about what they expected from the fit of a garment. Clothes that were too baggy, too tight, too long or too short all contributed to discomfort and mediocre performance. When the woman was comfortable she enjoyed

the sport more, wanted to ride more and was often able to ride better. These findings support previous research in which female athletic performance has been tied to clothing (Dickson & Pollack, 2000; Casselman-Dickson and Damhorst, 1993a; Wheat and Dickson, 1999).

Each of the garments was designed to be slightly different and incorporated the majority of the functional performance elements found in Table 8. Both jacket one and jacket two had zippered pockets with a key hook, both had vents, although different as described, the jackets both had wrist gaiters, elastic drawstrings at the hem, hoods, adjustable cuffs, lining and were made from waterproof fabrics. The pants also had zippered pockets although without a key hook since that was incorporated into the jackets, vents, boot gaiters, lower leg zips, a traditional zip fly, lining and they were both made from waterproof fabric.

In the initial survey and interview the women indicated that pant waterproofing is more important than the jacket because snowboarders are often sitting in the snow. In the prototype evaluation, however the women gave a higher rating to the importance of waterproofing and seam sealing in the jackets. Since the women were not as fond of the pants, it would appear that although it was expressed to be more important, it was not as important in a garment they did not like or could not see themselves wearing. The data showed the women were more concerned about the waterproof abilities of the fabric as opposed to the seams. This may indicate that while women want a water resistance from their clothing, a fully waterproof garment is less important.

Question Two

The second research question addressed the most important expressive elements in women's snowboarding clothing. From the survey and interview, the researcher found the elements discussed within the *personal style* core theme were the important expressive elements for women snowboarders. *Femininity*, *image*, and *uniqueness* were the specific elements most often mentioned by the participants. This study found that expressive elements were not as popular as the functional or aesthetic features of a garment but they cannot be overlooked. The expressive elements were often interrelated with the functional or aesthetic elements and were an integral part of a woman's look or style. For example, the fit of the garment was something most often described in terms of function. However, it was also a way for women to express their femininity supporting the interrelation of the FEA elements in Lamb & Kallal's (1992) Consumer Needs Model.

Certain garment elements allowed women to non-verbally communicate things about themselves such as their skill level or gender. Accessories, garment fit, fabrics, and color were used by the women to create a look that was both unique, comfortable and enabled her to express her personality. Particular clothing styles conveyed certain messages and the women became very skilled at both reading and dressing these styles. Most of the women wanted to dress in a way that showed they were not a beginner but they did not want to dress too technical and be mistaken for an expert either. These findings support previous research indicating the expressive elements of clothing were related to the degree of skill of the wearer (Cassleman-Dickson & Damhorst, 1993a, Dickson & Pollack, 2000).

The prototype garments were created to touch on different needs expressed by the participants. Outfit one was meant as a more snowboarder specific style and outfit two was meant to have a more feminine style. The researcher wanted to incorporate all expressive elements into each piece, however some of the needs among the women were contradictory and therefore a different emphasis was put into each outfit. The original interview and survey showed that the women felt a snowboarder specific garment was often characterized by baggy, loose garments which were incorporated into outfit one. Interestingly, the women rated the more fitted jacket, jacket two as the more snowboarder specific. The participants liked jacket two better and therefore may have rated it higher in all categories thus a higher rating for the snowboard specific look.

Jacket two and pant two were created to be more streamlined and feminine but with very neutral colors on the exterior and a fun bright interior. Jacket two was designed to cinch at the waist for a feminine look and pant two was designed to be sleek with not a lot of bulk, especially at the hips. The participants agreed that these features did equate to a feminine style even though the colors were darker and more neutral. In the initial survey and interview, the participants indicated that femininity was more important to some than others.

The initial survey and interview showed the women wanted unique snowboarding garments. When rating the uniqueness of the garments, the jackets were rated as more unique than the pants and jacket two was seen as more unique than jacket one. The participant comments suggested they felt the detailing on the jackets was unique but they did not feel there were any unique characteristics about the pants. From this research it appears that women want garments that have distinctive elements but they prefer those

elements to still be somewhat classic. The women were not keen on a unique garment that would draw too much attention but they wanted something that was different from the other riders on the mountain.

The women in the study did not use just their clothing as a way of expression. Hair was an important tool for communicating gender and emerged as a very important accessory. Women's hair was a way for them to portray their gender and acted as a security blanket when their clothes were not obviously feminine. This finding supports previous research that has shown hair was an important way to show for gender definition (Heino, 2000).

Some participants had never thought about their image or personal style in snowboarding clothes prior to this study so did not recognize the expressive elements in their clothing. Other women had very extensive wardrobes that allowed them versatility in their personal style and it was something they thought about quite a bit. Overall, the study participants found their clothing was an important communication tool to allow them to show their skill level, femininity, skill level and inclusion in the snowboarding subculture.

Question Three

The third research question pertained to what aesthetic elements were most important to women snowboarders from their clothing. From the survey and interview emerged the *aesthetic* and *color* themes. The colors and patterns or prints of the fabric were identified as the most important aesthetic features from this study. As expected, color emerged as an important aesthetic element. Unexpectedly, however color became a much more dominant theme than expected.

From the initial interview and survey data, the aesthetic properties of a garment were almost as important as the functional properties and, second to cost, were often the deciding factor in a garment purchase. The women felt that most garments in stores would meet the basic functional needs so it was often the aesthetic properties that would motivate a purchase. The prototype evaluation showed that the aesthetic properties were rated was very close to that of the functional properties meaning its importance often rivaled that of the functional properties.

This research study found that the majority of the women followed unwritten rules about how to match colors and prints. They almost always paired one bright color or pattern with one more neutral or solid color. Rarely would the women wear a pant and jacket that both had prints or patterns as this was too flashy and showy. Regardless of whether the women did or did not like patterned garments, they still followed fairly standard and similar matching rules.

The researcher found aesthetics were interrelated with the other elements in the FEA Consumer Needs Model (Lamb & Kallal, 1992). The participants wanted to wear patterns or color combinations that were unique but they did not want to wear pieces that were obnoxious or unrepresentative of their personality.

The original survey and interview data showed there was a definite split between those who liked patterned and printed fabric and those who did not. The prototype evaluation survey supported this data. The multi-color pattern used in the lining of jacket two received mixed and lower ratings than the solid, neutral lining of jacket one. The women indicated that since the pattern was only in the lining, it would not stop her from buying it. On the other hand, one of the women most critical of all other aspects of the

garments very much enjoyed the lining and it was something that she felt made it mass producible.

In the initial interview and survey, none of the participants had similar ideas of what colors they liked as all mentions of blue were different hues or shades. As expected, not all the participants liked all of the colors chosen for the garments. The gray was too drab and unfeminine for some and others just did not like navy or light blue. Black was the only color that was universally appealing to the majority of women. In fact, out of the 14 participants to fill out the prototype evaluation survey only two did not give the color a rating of five; one gave a four, the other a three. Although the black fabric was monotone, jacket two had enough subtle detail and feminine shaping to give it appeal.

An unexpected finding from this study was that color proved to be functional. Bye & Hakala (2005) reported that color was an important functional element for women sailors so they could be seen if they went overboard. Similarly, women snowboarders also used color as a functional element so they could find each other in the trees or in inclement weather. This supported the interrelation among the elements in Lamb and Kallal's 1992 FEA consumer needs model.

Question Four

The topics discussed in the first three research questions were familiar to the interview participants. However, the fourth question asked about environmental elements in a snowboard garment and this topic was very foreign to the participants. The topic was always first approached by the researcher and usually, the participant had little or no prior knowledge of clothing content or manufacture. In fact, most of the participants were clueless about environmentally friendly clothing and did not have much to offer

regarding their expectations of it. The researcher found that *company disclosure, price,* and *fabric* were the most important environmental elements for the interviewees.

The prototype garments were created from fabrics that would have otherwise gone to waste by the three companies thus giving them an inherent environmentally friendly quality. One of the three companies who donated fabrics however, was committed to producing and using recycled or environmentally friendly fabrics in their product lines. So, many of the fabrics used were already making an environmentally contribution because they were diverted from the landfill but the fact they were produced in an environmentally friendly way was a bonus.

A few of the study participants made positive comments regarding the recycled fabric content of the jackets, however the majority of the women did not make much mention of the environmental impact of the garments. Those that would wear garments with recycled fabric or components expected the same level of function as a traditionally manufactured garment. The initial interview and survey were indicators that the environmental impact of a garment was not something the women considered. The prototype evaluation survey supported this as it received the lowest rating of the four garment elements. Since many of the women had little or no apparel knowledge and even less environmentally friendly apparel knowledge, it was expected the ratings would be lower than the other garment element categories.

Previous studies of have shown that women may be more environmentally conscious (Balderjahn, 1988; Laroche, et al., 2001; Roberts, 1993,1996) and may be willing to pay more for environmentally friendly goods. This study's environmental results are mixed at best. In the interview, the participants discussed trying to be as

environmentally friendly as possible but they were often concerned with the costs or quality. Philanthropy, company ethics, and manufacturing processes were the main concerns among the women when they thought about environmentally friendly snowboarding garments. The prototype evaluation survey results indicated the participants thought the use of recycled fabric was a nice feature but it was not rated very important overall. When the women were asked how much more they would be willing to pay based on the environmental benefit of the garment, the majority felt more than 50 dollars was too much to spend.

It was expected that the participants would have a stronger desire for environmentally friendly goods since snowboarding is a sport that is dependent on the consistent yearly snowfall. However, the researcher found the environmental impact of a woman's snowboarding clothes was something she thought little about. This lack of knowledge could be the reason the women felt so neutrally about the environmental impact in the prototype evaluation survey. Not having an understanding of the environmental impact of any type of apparel, let alone snowboarding clothing could be a reason the women did not rank its importance higher.

Question Five

The fifth and final research question pertained to the addition of an environmental garment element to Lamb & Kallal's (1992) Functional Expressive Aesthetic (FEA) Consumer Needs FEA consumer needs model. The model was used for this study because it was developed as an apparel design framework that takes into consideration the needs and wants of a consumer with specific needs. The researcher hypothesized that the addition of an environmental element to a design model would provide a guide for

apparel designers to think about a garment's environmental impact from the very beginning. However, the results from the participants indicate it is not all that important to the consumer and therefore is not a requirement when the design is consumer focused.

Based on the initial interview and survey, the participants did not take into consideration the environmental impact of their clothing at all. In fact, environmentally friendly snowboarding clothing was something only one participant had any prior knowledge about. While virtually every woman was supportive of the idea of environmentally friendly snowboarding garments, many had never thought of the concept. For example, one respondent stated, "It's something that I never even really considered in my winter clothes and, I don't really know that much at all about like, what I would want" (Participant 15). The feedback received from the prototype evaluation survey indicated that the participants appreciated that the garments were made from recycled materials but it was still not as important as function, expression, or aesthetics.

Within the industry, some companies are incorporating environmentally friendly garments into their lines and others are making their entire lines from recycled or more environmentally friendly fabrics. Although there is some inclusion of environmentally friendly practices in the industry, the majority of goods are still manufactured in traditional ways with traditional fabrics.

The researcher has concluded that although it is most responsible for the planet to include an environmental element in the design model, the data does not support the need for such an addition at this time. Perhaps in the future, results of the study will show a shift in women snowboarder's views and garment priorities. For now, it is up to each

individual apparel designer to take into consideration the needs of the consumer and both the monetary and environmental cost of materials.

Chapter Six

Conclusion

Conclusion

This research focused on identifying specific elements, needs and desires women snowboarders have from their clothing. Specifically, the research focused on finding the functional, expressive, aesthetic, and environmental properties of snowboarding clothing most requested by the study participants. The researcher used Lamb & Kallal's (1992) FEA Consumer Needs Model as a theoretical framework to guide this study and the prototype clothing design. Once the participant's desires were identified from the initial interview and survey, two prototype jackets and two prototype pants were created. The original participants evaluated the garments in a prototype evaluation survey and provided valuable feedback regarding the design elements.

While it was expected and found that the functional garment elements would be important, the aesthetic components were more significant than originally anticipated. LaBat and DeLong (1990) reported that, "physical comfort, psychological comfort, and appearance" are all taken in to consideration when a woman is making a decision on how a garment fits (p 44). The data showed the expressive garment elements were less important overall than function and aesthetics but it was also found that the women truly desired feminine details, unique design traits, and pieces that were expressive of their individual personalities.

Color and the aesthetic garment elements emerged as a very important garment consideration. In both the survey and the interview, the women discussed a variety of colors they preferred but in the prototype evaluation survey the women preferred the monotone black jacket with the monotone gray pants. There are very different opinions on prints and patterns with fabric and companies should accommodate this by offering both solid and printed options within their clothing lines.

The researcher proposed an environmental addition to the original FEA Consumer Needs Model (Lamb & Kallal, 1992) but this addition was not supported by the research. Study participants appreciated the gesture towards environmental consideration but it was not a significant factor in the overall attitude towards the garment. The research found these participants were not willing to pay more than 50 dollars more than their budget on a piece of clothing due to its environmental properties and this result could be due to a presently weak economy.

Significance

Previous research has looked at women's sport apparel specific to many different sports, but snowboarding clothing has not been included. Mitchka et al. (2009) suggested that different sports have different apparel needs and, "assessments must be conducted for each specific type of active apparel" (p. 43). This research provided insight into the clothing considerations and desires from a small, yet diverse group of women snowboarders.

This study will provide snowboarding apparel manufacturers insight into what female snowboarders are specifically looking for in their snowboarding garments. Specifically, how important it is to consider the functional, expressive, aesthetic, and

environmental aspects of clothing design. Although the majority of the participants were satisfied with the availability of snowboarding clothing available to consumers, there were plenty of suggestions for room for improvement.

The use of waste or discarded fabric from apparel manufacturers is not a new concept, however it has not been applied to women's snowboarding clothing. While the research data did not support the addition of an environmental element to the model, it is important for designers to take into consideration the environmental impact of their designs from the beginning. This study offers insight into the opportunities and challenges associated with utilizing fabrics previously seen as waste and may provide the basis for future environmentally friendly design. Perceptions change over time and this study may yield different results in the future.

Implications

This study gathered participant opinions, created prototype garments based on those opinions, and then collected feedback about the prototypes. Since this study looked at both the design process and collected garment evaluation data, this research data may be beneficial to the outdoor apparel industry. It may offer a guide for apparel designers and manufacturers as a reminder of the basic functional needs while offering opportunity to further explore the aesthetic and expressive desires of women snowboarders. Understanding what women snowboarders are expecting from their clothing enables designers to create apparel that women not only need, but ultimately want.

This research hopes to add to the existing studies that use Lamb and Kallal's (1992) FEA Consumer Needs Model. By using the model as a guide for garment design

and receiving feedback on those designs, this research helped to support the use of the design model as a valid tool for consumer focused apparel design.

Future Research

This study opened opportunity and interest for many different future research directions. First, this study had a small number of participants; it would be beneficial for future research to test the functional, expressive, and aesthetic findings with a larger population of women snowboarders.

A second suggestion for future research would be to include women skiers in the sample and to look at similarities and differences between the responses of the two groups. This would help apparel manufacturers to best identify how to make products specific to one population or the other or to make garments that have mass appeal to any woman snowsport enthusiast.

Third, it would be interesting to look further into the relationship women have with their clothing and accessories. Women's expression of femininity through their clothing and accessories emerged as an interesting relationship. Future research could identify the overt and covert meanings and messages clothing and accessories hold. It would also be interesting to further identify how one's body image affects the aesthetic or expressive elements a woman may be drawn to.

A fourth option for future research is to look more closely at the role of aesthetics, specifically color in women's snowboarding clothing. Color emerged from this study as a very relevant theme and was extremely important to the women's overall opinion of a garment and would be a reason she would or would not make a garment purchase.

Understanding women's relationship with color may help retailers to produce garments that are not only aesthetically pleasing but meet a woman's expressive needs as well.

Although this research did not support the addition of an environmental element to the FEA Consumer Needs Model (Lamb & Kallal, 1992), the women in this study did indicate they would be willing to pay up to 50 dollars more for an environmentally friendly snowboarding garment. Although they would not be willing to spend more than 50 dollars more, this was the only price threshold and it would be interesting to see if there is a more exact dollar amount the women would be willing to spend. Future studies could also look at other environmentally friendly garments and the price thresholds associated with them.

Finally, this research study could be continued. The researcher could take the prototype evaluation feedback and make changes to the garment patterns, to develop a second set of prototype garments for a second set of prototype evaluation data. This would allow for very detailed feedback on the exact design elements and shapes these women preferred for these garments and provide further insight into the relationships between the functional, expressive, and aesthetic garment elements.

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Appendix A:

Phone conversation script

A: Phone conversation script

Hello, my name is Paige Emerich and I am a graduate student at Colorado State University in the Department of Design and Merchandising. For my thesis, I would like to design a line of women's snowboarding clothing based on women's attitudes towards their clothing and clothing that is available on the market. As part of my thesis I am contacting women snowboarders to participate in an interview to talk about their attitudes towards different aspects of their snowboarding clothing and clothing that is being sold on the market now. Each interview will last approximately two hours and will include a short survey. I will audio record the conversation for transcription and analysis. I will be creating some prototype garments based on the feedback from you and the other interview participants. After the garments have been created, I hope to do a second interview and survey with you to get your overall feedback.

The first interview will be scheduled beginning in August and the second will be in February 2011.

Is this a study you would be interested in participating in this study?

If no: Thank you for your time. Can you please suggest someone else who may fit the criteria and would be interested in participating?

If yes: Are you a woman snowboarder between the ages of 18-35 who has been snowboarding for at least two years and have been snowboarding at least once in the past year?

If yes again: Would you be interested and available to participate in this study as an interview participant?

If yes again: Great, thank you. Can I please get an email address from you so I can contact you to confirm the date, time, and location of our interview?

Appendix B:
Follow up Email Script

B: Follow up Email

Dear participant,

Thank you again for participating in our upcoming interview scheduled for ____ (date) April 2010 at ____ o'clock at _____ (location). When you come to the interview, please bring with you either a jacket or pair of pants you currently use for snowboarding or have used in the past. Please choose a garment you either particularly like or dislike to provide visual representation to the conversation. All interviewees will receive a free pair of snowboarding socks for their participation.

I will be creating prototype garments based on the feedback I receive in the interviews. Would you be available for a follow up interview and a wear test evaluation in October, 2010?

If you have any questions regarding this study, please feel free to contact me.

Sincerely,

Paige Emerich

Appendix C:

Survey

C: Survey

Please answer the following questions. If you feel a question needs further explanation, feel free to provide any details on the back.

The researcher will be constructing prototype garments and would like to get your feedback. If you will be available in Mid-October and would like to participate in a second interview and survey, please provide your contact information below.

Name: _____

Phone number: _____ Email: _____

Home address: _____

1. Age: _____

2. How many years have you been a snowboarder? _____

3. How many times have you been snowboarding in the past year? _____

4. What level (1-8) snowboarder would you consider yourself? (See last page for level descriptions). -

5. Do you wear your snowboarding jacket when not snowboarding? _____

Snowboarding pants? _____

6. How often do you purchase a snowboarding jacket? _____

Your snowboarding pants? _____

7. Do you have multiple outfits you use when snowboarding? _____

8. on average, how many years will you wear the same snowboarding jacket? _____

Your snowboarding pants? _____

9. Please rate the importance of the following garment features on a scale from one to four. One (1) being the most important, four (4) being the least important.

Functional garment elements _____
(i.e. fit, waterproof rating, warmth, mobility)

Expressive garment elements _____
(i.e. feminine appearance, brand name, adheres to trends)

Aesthetic garment elements _____
(i.e. color, design lines, overall visual appeal)

Environmental garment elements _____
(i.e. recycled fabric, biodegradable finishes or fabrics)

10. Considering the listed features, please rank your top five desired JACKET elements by importance, one (1) being the most important and five (5) being the least important:

Hood _____	Under arm vents _____
Hand gaiters _____	Articulated elbows _____
Connects to pants _____	Powder skirt _____
Color _____	Number of pockets _____
Variety of pockets _____	Insulated _____
Seam Sealed _____	Feminine appearance _____
Brand name _____	Sustainable/recycled fabrics _____
Country of origin _____	Other: (please list) _____ _____

Are there any features not listed you feel are important to have in a snowboarding jacket?

11. *Of the listed features, please rank your top five desired PANT elements by importance, one (1) being the most important and five (5) being the least important:*

- | | |
|-------------------------------------|------------------------------------|
| Bib style pant _____ | Pant rise _____ |
| Leg ventilation _____ | Pant length _____ |
| “Ghetto slits” _____ | Traditional zip fly _____ |
| Connects to jacket _____ | Belt _____ |
| Color _____ | Number of pockets _____ |
| Variety of pockets _____ | Insulated _____ |
| Seam sealed _____ | Articulated knees _____ |
| Feminine appearance _____ | Brand name _____ |
| Country of Origin _____ | Sustainable/recycled fabrics _____ |
| Other: (please list) _____
_____ | |

Are there any features not listed you feel are important to have in a snowboarding pant?

12. What size snowboarding jacket do you currently wear? _____
(example: S,M,L or 8,10,12)

13. What size snowboarding pant do you currently wear? _____
(example: S,M,L or 8,10,12)

14. On a scale from one to five, how satisfied are you with the selection of women’s snowboarding clothing currently available?

Not at all satisfied

Very satisfied

1 2 3 4 5

Snowboarding Level Descriptions

Beginner

Level 1

You have never snowboarded before.

Level 2

You can side slip on toe or heel, sliding to the left and to the right.

Level 3

You are able to slide left and right in control on both edges and complete an independent heel and toe turn on gentle green terrain.

Intermediate

Level 4

You are able to complete a linked toe and heel turn on gentle green terrain and looking toward easy blue runs.

Level 5

You are able to complete linked turns on toe and heel side on green and blue runs.

Level 6

You are able to complete linked turns with minimal traverse comfortably on all blue terrain and easy black runs.

Advanced

Level 7

You are able to link turns with rhythm and flow on difficult blue and most black runs.

Level 8

Join your instructors to make turns of any kind, anywhere, anytime all over the mountain and in all snow conditions, taking your riding to the highest level.

Appendix D:
Participation Consent Form

D: Consent Form

Consent to Participate in a Research Study Colorado State University

TITLE OF STUDY: Designing women's snowboarding clothing: Application and extension of the FEA consumer needs model

PRINCIPAL INVESTIGATOR: Dr. Eulanda Sanders, Ph.D., Department of Design and Merchandising, 970-491-7356.

CO-PRINCIPAL INVESTIGATOR: Paige Emerich, Graduate student, Department of Design and Merchandising, 307-760-6787.

WHY AM I BEING INVITED TO TAKE PART IN THIS RESEARCH? You are being invited to take part in this research study because you are a female snowboarder over the age of 18 who has participated in snowboarding at least once in the past year and has been snowboarding for at least two years. Your opinions about your snowboarding clothing will enable the researcher to construct snowboarding specific garments that appeal to adult women.

WHO IS DOING THE STUDY? The research team consists of Paige Emerich, a graduate student and her adviser, Dr. Eulanda Sanders.

WHAT IS THE PURPOSE OF THIS STUDY? The purpose of this study is to determine women's attitudes toward different snowboarding garment elements. The study will have an initial interview and survey, the researcher will create prototype garments, and finally the interviewees will be contacted again to evaluate the prototype garments.

WHERE IS THE STUDY GOING TO TAKE PLACE AND HOW LONG WILL IT LAST? The interviews will take place in the home of the researcher, the interviewee, or a quiet public location convenient to the interviewee. The initial survey and interview will last approximately one to two hours. After the prototype garments have been constructed, the initial interviewees will be contacted for a prototype evaluation interview and survey. The evaluation interview and survey will last approximately one to two hours.

WHAT WILL I BE ASKED TO DO?

- You will be asked to complete a short survey so the researcher can collect demographic information and basic snowboarding clothing opinion.
- You will be asked to sit with the researcher in an interview and answer questions about your snowboarding clothing preferences while being audio recorded.
- Based on the data collected from the initial interview and survey, the researcher will create prototype garments. You will be asked to take part in a second interview where you will evaluate the garments created.
- Both the initial interview and the prototype evaluation interview will take no more than 2 hours each

ARE THERE REASONS WHY I SHOULD NOT TAKE PART IN THIS STUDY? You should not take part in this study if you are not 18 years of age or older, have not snowboarded in the past year or have not been participating in snowboarding for at least the past two years.

WHAT ARE THE POSSIBLE RISKS AND DISCOMFORTS?

There are no known risks or discomforts associated with participation in this study. It is not possible to identify all potential risks in research procedures, but the researcher(s) have taken reasonable safeguards to minimize any known and potential, but unknown, risks.

ARE THERE ANY BENEFITS FROM TAKING PART IN THIS STUDY? There are no direct benefits associated with participation in this study.

DO I HAVE TO TAKE PART IN THE STUDY? Your participation in this research is voluntary. If you decide to participate in the study, you may withdraw your consent and stop participating at any time without penalty or loss of benefits to which you are otherwise entitled.

WHAT WILL IT COST ME TO PARTICIPATE? Participation in this study will not cost anything other than time.

WHO WILL SEE THE INFORMATION THAT I GIVE? We will keep private all research records that identify you, to the extent allowed by law.

Your information will be combined with information from other people taking part in the study. When we write about the study to share it with other researchers, we will write about the combined information we have gathered. You will not be identified in these written materials. We may publish the results of this study; however, we will keep your name and other identifying information private.

We will make every effort to prevent anyone who is not on the research team from knowing that you gave us information, or what that information is. For example, your name will be kept separate from your research records and these two things will be stored in different places under lock and key.

Your identity/record of receiving compensation (NOT your data) may be made available to CSU officials for financial audits.

CAN MY TAKING PART IN THE STUDY END EARLY? Your participation in this research study is completely voluntary. If you decide to participate in the study, you may withdraw your consent and stop participating at any time.

WILL I RECEIVE ANY COMPENSATION FOR TAKING PART IN THIS STUDY? As compensation for taking part in this study, you will receive a small gift.

WHAT HAPPENS IF I AM INJURED BECAUSE OF THE RESEARCH? The Colorado Governmental Immunity Act determines and may limit Colorado State University's legal responsibility if an injury happens because of this study. Claims against the University must be filed within 180 days of the injury.

WHAT IF I HAVE QUESTIONS?

Before you decide whether to accept this invitation to take part in the study, please ask any questions that might come to mind now. Later, if you have questions about the study, you can contact the investigator, Dr. Eulanda Sanders at 970-491-7356 or Paige Emerich at 307-760-6787. If you have any questions about your rights as a volunteer in this research, contact Janell Barker, Human Research Administrator at 970-491-1655. We will give you a copy of this consent form to take with you.

WHAT ELSE DO I NEED TO KNOW? This is a two part study where you will be contacted once for opinions about your snowboarding clothing and a second time to evaluate the prototype garments created by the researcher. All interviews will be audio recorded and the use of voice recognition software will be used to aid the researcher in interview transcription.

Appendix E
Interview Questions

E: Interview Questions

1. Looking at the jacket and/or pair of pants you brought, please tell me what you really like or dislike about these garments.
2. Thinking of the perfect snowboard jacket, please describe any and all functional features it would have.
3. Thinking of the perfect snowboard pant, please describe any and all functional features it would have.
4. Please describe how you want your snowboard clothes to make you feel, how do you want to be perceived by others?
5. What brands of snowboarding clothing do you prefer? Why?
6. Thinking of a snowboarding jacket, what aesthetic elements are you most drawn to?
7. Thinking of a snowboarding pant, what aesthetic elements are you most drawn to?
8. If you were to think of an environmentally friendly snowboarding outfit, what fabrics would it have or what features and benefits would it provide?
9. What would make you choose an environmentally friendly snowboard garment over a traditionally manufactured one?
10. On your survey (refer to woman's survey) you indicate you are (however satisfied) with the current selection of snowboarding clothing, please elaborate.

Appendix F:
Email to Companies

F: Letter to companies

To whom it may concern,

My name is Paige Emerich and I am a graduate student at Colorado State University in the Department of Design and Merchandising in the Apparel Design program. For my thesis, titled “Designing Women's Snowboarding Clothing: Application and Extension of the FEA Consumer Needs Model,” I am conducting interviews with women snowboarders to find what they like/dislike in their snowboarding clothing. I am going to use the information collected from the interviews to create 3 jackets and 3 pairs of pants. As part of the research, I have an environmental focus to the designing and product development. Instead of purchasing new fabric, I am hoping to utilize the small yardage waste, excess or unused fabrics from companies within the industry. I hope to aid in the diversion of fabric from landfills by recycling it into uniquely styled and fully functional garments.

Attached is the participation consent form to show authenticity of my study and to offer additional information about the research purpose. Please feel free to contact myself or my advisor, Dr. Eulanda Sanders (sanders@cahs.colostate.edu) with any questions or to contribute to this research.

Thank you in advance for your consideration, I look forward to hearing from you.

Paige Emerich
Graduate Student
Department of Design and Merchandising
Colorado State University
307-760-6787
pemerich@cahs.colostate.edu

Appendix G:
Bill of Materials

G: Bill of Materials

Jacket One

Item	Description	Approximate Yield/ Quantity
Outer Fabric	Gray, waterproof breathable, 3L Blue gradation, 7 different colors, waterproof breathable, 3L	1.5 yards
Accent Panels	White, waterproof breathable, 2L	.25 yard
Lining- Body	Gray, 2 different types wicking, 100% polyester	.5 yard
Lining- Arms	Navy, 2 different types wicking, 100% polyester	.5 yard
Hood lining	Gray, fleece, 100% polyester	.25 yard
Vent Panels	Black, mesh	.25 yard
Seam Seal	Bemis 2L seam seal tape, iron on	7 yards
Cording	White, round elastic cording	2 yards
Cord Stops	Clear, round, 2 hole	2
Cord Stops	Clear/Blue, round, 2 hole	2
Magnets	Clear, sew-on clothing magnets	4
Zipper	Blue, 29.5", waterproof zipper	1
Zipper	Gray, 7", invisible zipper	2
Zipper	Gray, 9"	2
Velcro	Black, 1"	8 inches
Key Hook	Black, 1" swivel hook	1

Pant One

Item	Description	Approximate Yield/ Quantity
Outer Fabric	Navy, waterproof breathable, 3L, tricot bonded	3 yards
Accent Fabric	Light blue, waterproof breathable, 2L	2 yards
Lining- Front	Light blue, 100% nylon, ripstop	2 yards
Lining- Back	Navy/Gray, water resistant, wind resistant fleece	1 yard
Vent Panels	Black, mesh	.25 yard
Seam Seal	Bemis, 2L tape, iron on	4 yards
Cording	Black, oval cording	2 yards
Cord Stops	Black, 2 hole cord stops	2
Gripper Elastic	Black	.5 yard
Zipper	Navy, 9" Fly zipper	1
Zipper	Navy, 12", invisible zipper	2
Zipper	Navy, 7" zipper	2
Zipper	Light blue, 7" zipper	2
Snap	Destroyed metal finish	1

Jacket Two

Item	Description	Approximate Yield/ Quantity
Outer Fabric	Black, waterproof breathable, 3L, tricot bonded	2.5 yards
Accent Panels	Black, 12 different fabrics	1 yard
Lining- Body	Multicolor print	2 yards
Lining- Arms	Purple, embossed	1 yard
Hood lining	Black, 100% polyester	.25 yard
Vent Panels	Black, mesh	.25 yard
Seam Seal	Bemis 2L, iron on	6 yards
Cording	Black, oval elastic cording	2 yards
Cord Stops	Black, 2 hole	4
Zipper	Black, 26" water resistant	1
Zipper	Black, 9", invisible zippers	2
Zipper	Black, 4" invisible zipper	1
Zipper	Black, 20" zipper	2
Zipper	Purple, 6" zipper	1
Velcro	Black	15 inches
Key Hook	Black, 1" swivel hook	1

Pant Two

Item	Description	Approximate Yield/ Quantity
Outer Fabric	Dark gray, pinstripe, waterproof breathable 2L	2.5 yards
Outer Fabric	Light gray, pinstripe, waterproof breathable 2L	.5 yard
Accent Fabric	Bright yellow, waterproof breathable 2L	.5 yard
Accent Fabric	Gray, water resistant 2L	.5 yard
Lining- Front	Bright yellow, circle print	1 yard
Lining- Back	Gray, wind resistant fleece	.25 yard
Vent Panels	Black, mesh	.25 yard
Seam Seal	Bemis, 2L tape, iron on	4 yards
Cording	Black, oval cording	2 yards
Cord Stops	Black, 2 hole cord stops	2
Gripper Elastic	Black	.5 yard
Zipper	Gray, 9" fly zipper	1
Zipper	Gray, 20", invisible zipper	2
Zipper	Gray, 7" zipper	8
Snap	Destroyed metal finish	1

Appendix H:
Prototype Evaluation Survey

H: Prototype Evaluation Survey

JACKET #1 QUESTIONS

Using JACKET #1 images and fabric swatches, place an “X” in the box that best represents how much you like or dislike each of the jacket features.

	I very much dislike 1	2	Neutral 3	4	I very much like 5
The fit of the jacket					
The length of the jacket					
The length of the sleeves					
Outside pocket placement					
Inside pocket placement					
Vent placement					
Exterior fabric colors					
Lining fabric colors					

Using JACKET #1 images and fabric swatches, place an “X” in the box that best represents how much you agree or disagree with the statements.

	I very much disagree 1	2	Neutral 3	4	I very much agree 5
The vents appear to be a good size					
Knowing the waterproof rating of the fabrics used in this jacket is important					
Knowing this snowboarding jacket is fully seam sealed is important to me					
I would wear this jacket when I was not snowboarding					
I would wear this jacket with my existing snowboarding pants					
The style of this jacket is snowboarder specific					
The style of this snowboarding jacket has a feminine appearance					
I could see myself wearing this snowboarding jacket					
This jacket is unique compared to other snowboarding jackets I have seen					
It appears I could layer comfortably underneath this snowboarding jacket					
I like the look and feel of the exterior fabrics					
I like the look and feel of the lining fabric					

The lining fabric seems appropriate for a snowboarding jacket					
It is important to me that this snowboarding jacket is made from recycled fabric					
Because this jacket uses recycled fabric, I would be willing to spend <i>up to \$50</i> more for it					
Because this jacket uses recycled fabric, I would be willing to spend <i>more than \$50</i> more for it					

Please give your overall thoughts on Jacket #1:

PANT #1 QUESTIONS

Using PANT #1 images and fabric swatches, place an “X” in the box that best represents how much you like or dislike each of the jacket features.

	I very much dislike 1	2	Neutral 3	4	I very much like 5
The fit of the pant					
The length of the pant legs					
The length of the rise					
The shape of the pant legs					
Pocket Placement					
Vent Placement					
Exterior fabric colors					
Lining fabric colors					

Using PANT #1 images and fabric swatches, place an “X” in the box that best represents how much you agree or disagree with the statements.

	I very much disagree 1	2	Neutral 3	4	I very much agree 5
The vents appear to be a good size					
Knowing the waterproof rating of the fabrics used in this pant is important					
Knowing this snowboarding pant is fully seam sealed is important to me					
I would wear this pair of pants when I was not snowboarding					
I would wear this pair of pants with my existing snowboarding jacket					
The style of this pant is snowboarder specific					
The style of this snowboarding pant has a feminine appearance					
I could see myself wearing this snowboarding pant					
This pant is unique compared to other snowboarding pants I have seen					
It appears I could layer comfortably underneath this snowboarding pant					
I like the look and feel of the exterior fabrics					
I like the look and feel of the lining fabric					

The lining fabric seems appropriate for a snowboarding pant					
It is important to me that this snowboarding pant is made from recycled fabric					
Because this pant uses recycled fabric, I would be willing to spend <i>up to \$50</i> more for it					
Because this pant uses recycled fabric, I would be willing to spend <i>more than \$50</i> more for it					

Please give your overall thoughts on Pant #1:

OUTFIT #1 QUESTIONS

Using OUTFIT #1 images and fabric swatches for Jacket #1 and Pant #1, place an “X” in the box that best represents how much you agree or disagree with the statements.

	I very much disagree 1	2	Neutral 3	4	I very much agree 5
I like the style of the jacket and pant together					
I like the colors of the jacket and pant together					
I would wear this jacket and this pant together					
I would wear only the jacket					
I would wear only the pants					
I would purchase these garments together as an outfit					

Please give your overall thoughts on Outfit #1:

JACKET #2 QUESTIONS

Using JACKET #2 images and fabric swatches, place an “X” in the box that best represents how much you like or dislike each of the jacket features.

	I very much dislike 1	2	Neutral 3	4	I very much like 5
The fit of the jacket					
The length of the jacket					
The length of the sleeves					
Outside pocket placement					
Inside pocket placement					
Vent placement					
Exterior fabric colors					
Lining fabric colors					

Using JACKET #2 images and fabric swatches, place an “X” in the box that best represents how much you agree or disagree with the statements.

	I very much disagree 1	2	Neutral 3	4	I very much agree 5
The vents appear to be a good size					
Knowing the waterproof rating of the fabrics used in this jacket is important					
Knowing this snowboarding jacket is fully seam sealed is important to me					
I would wear this jacket when I was not snowboarding					
I would wear this jacket with my existing snowboarding pants					
The style of this jacket is snowboarder specific					
The style of this snowboarding jacket has a feminine appearance					
I could see myself wearing this snowboarding jacket					
This jacket is unique compared to other snowboarding jackets I have seen					
It appears I could layer comfortably underneath this snowboarding jacket					
I like the look and feel of the exterior fabrics					
I like the look and feel of the lining fabric					

The lining fabric seems appropriate for a snowboarding jacket					
It is important to me that this snowboarding jacket is made from recycled fabric					
Because this jacket uses recycled fabric, I would be willing to spend <i>up to \$50</i> more for it					
Because this jacket uses recycled fabric, I would be willing to spend <i>more than \$50</i> more for it					

Please give your overall thoughts on Jacket #2:

PANT #2 QUESTIONS

Using PANT #2 images and fabric swatches, place an “X” in the box that best represents how much you like or dislike each of the jacket features.

	I very much dislike 1	2	Neutral 3	4	I very much like 5
The fit of the pant					
The length of the pant legs					
The length of the rise					
The shape of the pant legs					
Pocket Placement					
Vent Placement					
Exterior fabric colors					
Lining fabric colors					

Using PANT #2 images and fabric swatches, place an “X” in the box that best represents how much you agree or disagree with the statements.

	I very much disagree 1	2	Neutral 3	4	I very much agree 5
The vents appear to be a good size					
Knowing the waterproof rating of the fabrics used in this pant is important					
Knowing this snowboarding pant is fully seam sealed is important to me					
I would wear this pair of pants when I was not snowboarding					
I would wear this pair of pants with my existing snowboarding jacket					
The style of this pant is snowboarder specific					
The style of this snowboarding pant has a feminine appearance					
I could see myself wearing this snowboarding pant					
This pant is unique compared to other snowboarding pants I have seen					
It appears I could layer comfortably underneath this snowboarding pant					
I like the look and feel of the exterior fabrics					
I like the look and feel of the lining fabric					

The lining fabric seems appropriate for a snowboarding pant					
It is important to me that this snowboarding pant is made from recycled fabric					
Because this pant uses recycled fabric, I would be willing to spend <i>up to \$50</i> more for it					
Because this pant uses recycled fabric, I would be willing to spend <i>more than \$50</i> more for it					

Please give your overall thoughts on Pant #2:

OUTFIT #2 QUESTIONS

Using OUTFIT #2 images and fabric swatches for Jacket #2 and Pant #2, place an “X” in the box that best represents how much you agree or disagree with the statements.

	I very much disagree 1	2	Neutral 3	4	I very much agree 5
I like the style of the jacket and pant together					
I like the colors of the jacket and pant together					
I would wear this jacket and this pant together					
I would wear only the jacket					
I would wear only the pants					
I would purchase these garments together as an outfit					

Please give your overall thoughts on Outfit #2:

Appendix I:
Garment Photos

Jacket # 1



Pant #1



Outfit # 1



Jacket #2



Pant #2

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Outfit #2

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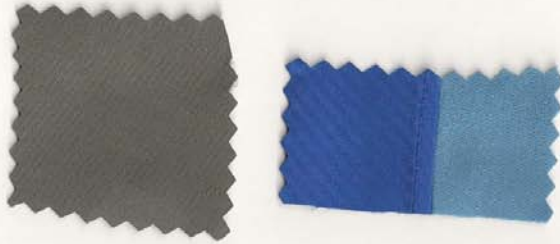
Appendix J:
Fabric Swatches

DESIGNING WOMEN'S SNOWBOARDING CLOTHING:
APPLICATION AND EXPANSION OF THE FEACONSUMER NEEDS MODEL
PROTOTYPE EVALUATION FABRIC SAMPLE SWATCH CARD

Jacket #1

Exterior Fabrics

All fabrics used are 3 Layer Waterproof Breathable,
unknown waterproof rating, 100% Polyester



Pant #1

Exterior Fabrics

Navy/Light Blue: 3 Layer Waterproof Breathable, un-
known waterproof rating, unknown fiber content



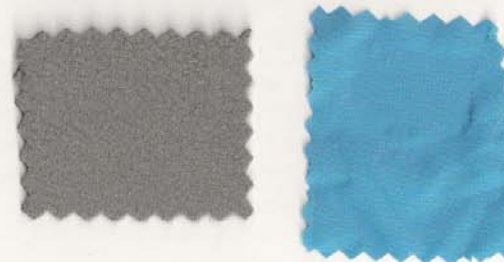
Lining Fabrics

Both are wicking fabric, 100% Polyester



Lining Fabrics

Gray/Navy: Wind resistant fleece, 100% Polyester
Light Blue: Ripstop Nylon, 100% Nylon



DESIGNING WOMEN'S SNOWBOARDING CLOTHING:
APPLICATION AND EXPANSION OF THE FEA CONSUMER NEEDS MODEL
PROTOTYPE EVALUATION FABRIC SAMPLE SWATCH CARD

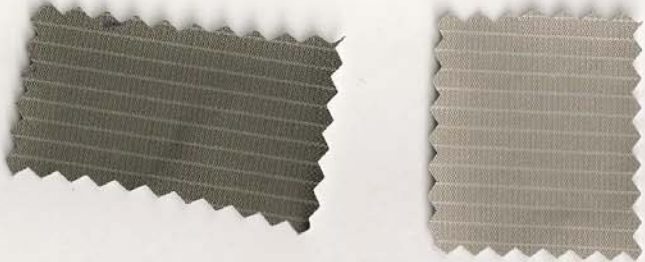
Jacket #2

Pant #2

Exterior Fabrics
Black/Black piecing: Mix of 2 and 3 layer waterproof breathable, unknown fiber content



Exterior Fabrics
All fabrics used are 2 Layer waterproof breathable, unknown fiber content



Lining Fabrics
Unknown fiber content for both



Lining Fabrics
Gray: Wind resistant fleece, unknown fiber content
Yellow/Green: Unknown fiber content



Appendix K:
Budget and Timeline

K: Budget and Timeline

Budget

Beverages and snacks for interview participants	\$100
Travel cost	\$150
Trims, notions, fabric	\$500
NVIVO	\$180
TOTAL APPROXIMATED COST	\$930

Timeline

April 2010	Thesis proposal and Human Subjects approval
August 2010	IRB Approval
August 2010-December 2010	Data collection
January 2011	Data analysis
February 2011- March 2011	Design analysis and prototype development
April 2011	Prototype evaluation analysis
June 2011	Thesis defense
August 2011	Expected graduation