

Fashion and Sustainability: Increasing Knowledge About Slow Fashion Through an Educational Module

^a Rachel Preuit & ^a Ruoh-Nan (Terry) Yan

^a Colorado State University, USA

ABSTRACT

The purpose of this study is to understand whether exposure to education about slow fashion regarding its environmental benefits would influence consumers' knowledge, attitudes, and purchase intentions toward slow fashion apparel and also to investigate whether knowledge about and attitude toward slow fashion would influence young adult consumers' purchase intentions toward slow fashion. College-aged students were recruited and a mixed-method approach with three phases of data collection was implemented, including a focus group, a pre-educational survey along with an educational module, and a post-educational survey to all participants from the pre-educational survey. The final sample for analyses included 163 participants. Paired-sample t-tests showed that the module significantly improved the participants' objective knowledge and subjective knowledge of, and attitudes toward slow fashion; however, their purchase intentions toward slow fashion remained unchanged. Results also indicated that subjective knowledge and attitude positively predicted purchase intention toward slow fashion. Findings suggest that a 30 minute educational module in the power point format made a significant, positive impact on young adult consumers' knowledge of and attitudes toward slow fashion. This study expanded the slow fashion research through the incorporation of an educational module which was found to improve consumer knowledge and attitude toward slow fashion.

KEYWORDS

educating for sustainability, behavior change, attitude, knowledge, slow fashion, purchase intention

ARTICLE HISTORY

Received 22 January 2017
Revised 30 March 2017
Accepted 13 April 2017

Introduction

Interest in sustainability has grown over the past several decades and is expected to keep growing as human societies continue to face challenges with the depletion of natural resources and a growing population. Sustainability studies are all encompassing as numerous articles have shown how every field of study can be related to sustainability. Because there are not yet ready solutions for many global environmental challenges, continued research in sustainability

CORRESPONDENCE Rachel Preuit ✉ rachelpreuit@gmail.com

© 2017 R. Preuit & R.-N. (Terry) Yan.

Open Access terms of the Creative Commons Attribution 4.0 International License apply. The license permits unrestricted use, distribution, and reproduction in any medium, on the condition that users give exact credit to the original author(s) and the source, provide a link to the Creative Commons license, and indicate if they made any changes. (<http://creativecommons.org/licenses/by/4.0/>)

is necessary. The World Commission on Environment and Development (1987) defines sustainability as meeting the current generation's needs without compromising the needs of future generations. Other definitions of sustainability typically include the triple bottom line concept, which incorporates the environment, people, and the economy. The following nested model (see Figure 1) shows that the economy and people must exist within the boundaries of the environment; without a functioning environment, people and the economy cannot exist.

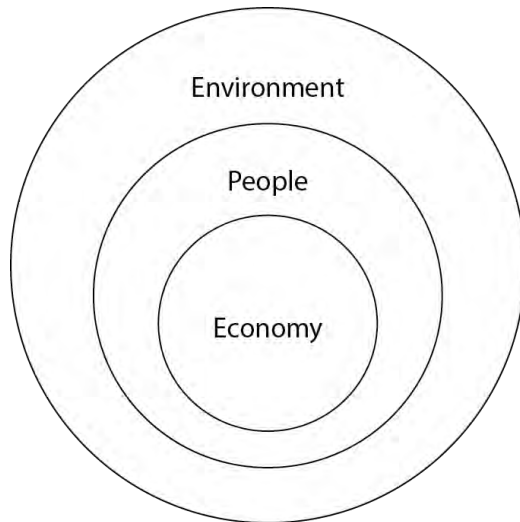


Figure 1: Three Nested Dependencies (Timpson, et al., 2006)

In her book, *Sustainable Fashion and Textiles: Design Journeys*, Fletcher (2008) points out that as the interest in sustainability continues to grow, there is an increased initiative to understand more about the issues related to sustainability in the textile and apparel industry. The textiles and apparel industry has started to go through changes as it faces resource shortages, new channels of distribution, and shifts in the global economy (Pookulangara & Shepard, 2013). One sustainability-related issue in the textile and apparel industry is how much we consume clothing, which has driven businesses to produce more products that are “newer” or “better” which then encourages individuals to feel that they need the newest and best products, discarding the older clothes when they are still wearable. The rate at which humans consume things, especially Americans, is not sustainable. Fletcher (2010) states that we have created a throwaway society where many of the things we purchase are disposable or not expected to last a long time. For instance, in New York City, an estimated 2,000,000 tons of textiles are disposed of each year; about 45% of those textiles are usable in some way and about 10% are still wearable (Flynn, 2014). This type of throwaway culture is especially evident in the fast fashion business model, which is shaped by copying runway trends and having products in the stores within several weeks (Joy, Sherry, Venkatesh, Wang, & Chan, 2012). The fast fashion business model is based upon inexpensive, low-quality garments, quick production and sale, and high consumption, which has drawn criticism as much of the fast fashion clothing often ends up in the landfill (Flynn, 2014).

An emerging alternative to the high volume, high consumption fast fashion business model is slow fashion. Slow fashion is an apparel business model that is based upon values and goals that incorporate awareness, responsibility, and forging relationships between creators and consumers (Fletcher, 2010). Recent trends have shown that independent fashion designers in Canada are using the slow fashion business model to further differentiate themselves from the increasingly popular fast fashion retailers (Leslie, Brail, & Hunt, 2014). The term “slow fashion” has developed recently, yet the concept is based upon returning to a time when the consumer knew who made their clothes and had a greater awareness of where their clothing came from. Because slow fashion is an emerging business model, there are few academic studies in this area and consumers may not have the knowledge of its environmental benefits or know where to shop for this type of clothing.

Further, research has suggested that many young female consumers are unaware of where and how clothing is made, the environmental consequences of clothing production, and how to properly dispose of clothing (Morgan & Birtwistle, 2009). Pookulangara and Shepard (2013) conducted an exploratory study in the Southwestern United States and found that young adult consumers in their study did not feel that they had enough knowledge to make an ethical decision. If consumers gain more knowledge of what slow fashion is and how it is a more sustainable alternative to fast fashion, there could be a shift away from consumption habits driven by fast fashion and towards more sustainable consumerism.

In summary, much literature has suggested that many consumers are unaware of the environmental impacts when they purchase low quality, inexpensive “fast fashion” items (Morgan & Birtwistle, 2009). An emerging and more sustainable alternative, the “slow fashion” business model focuses on production of quality garments and encourages consumers to hold onto them longer. Research on slow fashion has been limited with a few exceptions (e.g., Jung & Jin, 2014). Thus, there are two aims of the study. First, this study aims to understand whether exposure to education about slow fashion regarding its environmental benefits and about fast fashion regarding its environmental impacts would influence consumers’ knowledge, attitudes, and purchase intentions toward slow fashion apparel. Second, this study investigates whether knowledge about and attitude toward slow fashion would influence young adult consumers’ purchase intentions toward slow fashion. The study intends to address one of the many dilemmas of environmental education to convince individuals to adopt pro-environmental attitudes and behaviors through the consumption of clothing (Weinberger & Dreyfus, 2013).

The underlying theoretical framework for this study is rooted in the attitude theories with additional variables (i.e., consumer knowledge). The attitude theories have been applied in many studies examining environmental behavior (Arvola et al., 2008; Lee & Yun, 2014) as well as studies specifically related to the textile and apparel industry (Kang, Liu, & Kim, 2013; Salazar, Oerlemans, & van Stroe-Biezen, 2013). Generally, the attitude theories have concluded that consumers’ attitudes toward a target are likely to influence their behavioral intentions toward that specific target. This study explores whether an educational module related to fast fashion and slow fashion would impact consumers’ related knowledge, attitudes, and purchase intentions. The two

types of consumer knowledge (i.e., subjective knowledge and objective knowledge) were added as additional variables to study. Consumer knowledge, affecting a consumer's decision-making process, can be divided into subjective, referring to what an individual's confidence in his or her knowledge, and objective, what an individual actually knows (Brucks, 1985; Corbett, 2006). Ideally, increased knowledge on the environmental impacts of fast fashion and the benefits of slow fashion will affect young adult consumers' attitude which will help them to develop more sustainable purchase intentions, as suggested by Shamuganathan and Karpudewan (2015) who found that responsible environmental behaviors can be influenced by consumers' attitudes and beliefs towards performing responsible environmental behaviors and knowledge about the environmental issues.

Literature Review

Sustainability in the Textile and Apparel Industry

Industry research shows that for effective implementation of sustainable business practices, the passion of the head or founder is typically the driving force for incorporating sustainability throughout a large firm (Beard, 2008). The environmental interests of the company can trickle out to consumers, who might only learn of environmental issues through company marketing. Many companies have taken environmental initiatives such as using organic cotton as product material and incorporating recycling or reusing old clothing into their supply chain. Another important aspect of sustainability is to be transparent and to communicate company business practices to consumers (Bhaduri & Ha-Brookshire, 2011). Sustainably oriented brands can partner with bluesign and choose to be more transparent with their supply chain (Bluesign, 2013). Each product produced under the bluesign regulations is given a label, allowing the consumer to know more about the supply chain of the product and the company is able to build brand credibility as the supply chain becomes more transparent (Bluesign, 2013). Historically, the textile and apparel industry has had one of the least transparent supply chains. Currently, many companies do not have complete interaction throughout their entire supply chain, giving no transparency to how materials or products are made (Chouinard & Brown, 1997). This lack of transparency in the supply chain is an issue because consumers passively trust manufacturer's tests of quality and sustainability, without questioning the traceability of the products they are purchasing (Hepburn, 2013). However, there are companies that are working towards complete transparency with their consumers. Patagonia, for example, has created "The Footprint Chronicles" so that consumers can trace the fabric, components, and the production of their garments (Polley, 2012). This act of transparency has required Patagonia to take a deeper look at where their materials are coming from.

The way companies communicate their sustainable practices to consumers is very important because there could be a change in materials or increase in price when incorporating the sustainability aspect in products and/or supply chains. When Patagonia switched from conventional cotton to organic cotton, they needed to find a way to communicate the increase in cost and the change in the material to the consumer (Chouinard & Brown, 1997). Research has suggested that consumers tend to be more receptive to messages that place

importance on the environmental benefits of materials rather than the negative environmental impacts of the non-sustainable option (Hustvelt & Dickson, 2008; Chouinard & Brown, 1997). Educating consumers with the benefits of a sustainable production method (e.g., slow fashion) and highlighting negative impacts of the less sustainable approach (e.g., fast fashion) could be effective to encourage consumers to purchase more sustainably (Hustvedt & Dickson, 2008).

Fast Fashion

Fletcher (2008) defines fast fashion as a “combination of high speed production-tracking sales with electronic tills, and just-in-time manufacturing that now makes it possible to turn a design sketch or a sample into a finished product in as little as three weeks ” (p. 161). Similar to the fast food industry, the fast fashion business model is defined by high speed, high volume, and high consumption. For both food and fashion, “fast” does not just refer to the speed, it is an economic tool used to increase products and grow profits (Fletcher, 2010). “Fast” also refers to the rate of disposal as these products are designed with the intention that they will only last 10 washes (Joy et al., 2012). With this in mind, designers focus on making these items on trend and spend less consideration on the quality of the fabric or the construction, which allows price points of fast fashion products to be kept very low. There is quick turnover, leaving consumers with very little guilt about their purchases and the later disposal of these products (Joy et al., 2012). There is no interaction with the maker or the process of creating the garment, leaving disappointment, and then disappointment again with the disposal of clothing when consumers grow tired of the item or it is no longer on trend (Fletcher, 2008).

Research has also shown that fast fashion consumers are often described as “pleasure seeking hedonists” who are primarily concerned with being “on trend” at lower prices, rather than the well-being of the planet (Crane, 2010; Morgan & Birtwistle, 2009). In a study by Morgan and Birtwistle (2009), more than 50% of their young adult female participants purchased fashion garments every two weeks and more than 75% bought something every month. Likewise, Watson and Yan (2013) found that young adult female consumers liked the excitement of shopping for fast fashion and typically purchase frequently and in quantity. Because of low price points of fast fashion products, many young consumers expect to purchase similar products at a low price (Morgan & Birtwistle, 2009).

It is noteworthy that there may be barriers when it comes to shopping for more sustainable apparel. For instance, fast fashion consumers may not have enough knowledge to know where to shop for products that are environmentally friendly and may not feel that it is urgent enough to do the research (Cowan & Kinley, 2014; Kollmuss & Agyeman, 2002). Institutional factors, such as lack of infrastructure, can be also barriers for pro-environmental behavior. Additionally, Kollmuss and Agyeman (2002) found that economic factors play a huge role in consumers’ decisions and there is a lack in understanding of consumers purchase intentions toward sustainable products and how they actually spend their money. This fast fashion business model has existed partially because disposal costs are externalized and consumers are not affected (Cooper, 2005). Externalized costs mean that individual consumers do not feel the costs in their wallets, rather costs are seen through increased damage to the

environment and the depletion of natural resources due to the supply chain demands (Fletcher, 2010).

Although fast fashion has been popular among young consumers, in a blog study on motivational drivers of fast fashion avoidance, Kim, Choo, and Yoon (2012) found that there are consumers who would avoid buying fast fashion products because of its environmental impacts and low quality. The emerging business model of slow fashion provides alternatives for those consumers.

Slow Fashion

An alternative, though not the direct opposite, of fast fashion is slow fashion. Slow fashion is a relatively new concept in the textile and apparel industry, therefore the definition is still evolving (Pookulangara & Shephard, 2013). Originating from the slow food movement, the slow fashion business model emphasizes on quality, durability, and long-term investment and values the relationship between the consumer and the environment. Clark (2008) defines three goals of slow fashion as valuing local resources and distributed economies, transparent production systems, and creating sustainable and sensorial products. This movement rejects the large-scale, expedited models that are the standard for industry today. In this same way, slow fashion urges consumers to reconnect with an old way of living, encouraging them to take a more active role in their purchasing decision. Pookulangara and Shephard (2013) proposed a slow fashion process across the design, production, and consumption phases (see Figure 2).

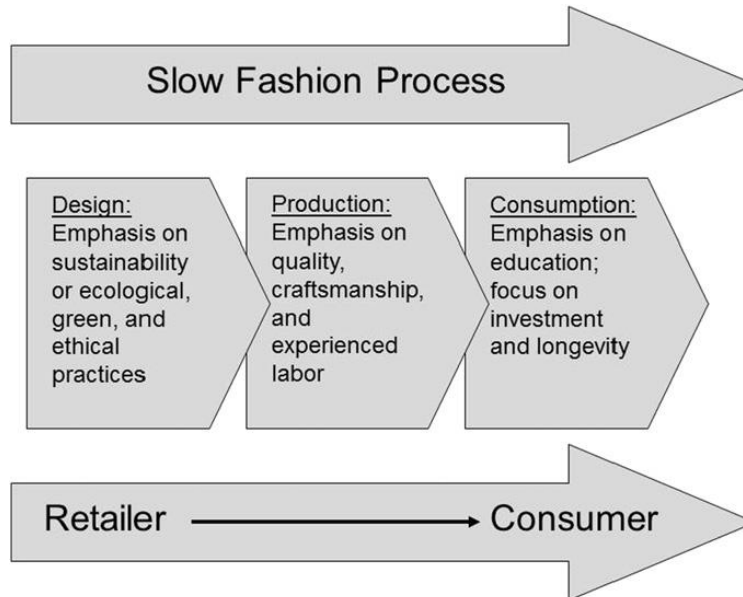


Figure 2: The slow fashion process, reprinted from “Slow fashion movement: Understanding consumer perceptions – An exploratory study” by Pookulangara & Shephard (2013).

The design emphasis of slow fashion is on quality throughout the development process including the environment, business model, and working conditions (Fletcher, 2008). Consumers invest in the integrity of the product

because they know the source. By looking deeper into the process, consumers develop a greater appreciation of the product (Wanders, 2009). Because of the increased awareness of slow fashion, local design and manufacturing is almost encouraged. Local design and manufacturing means a smaller environmental footprint and the supply chain can be more transparent to the consumer. Localism also helps to create a less cloned society because different products are sold in different areas.

Few studies have examined the slow fashion consumer; however, it can be inferred that the slow fashion consumer is believed to have different characteristics than the fast fashion consumer. Relevant studies have revealed that the slow fashion consumer makes purchases that compliment their existing wardrobe. Slow fashion is based on timeless style and quality and the consumers will think about how these purchases will fit with things already owned and how these items will expand their wardrobe (Pookulangara & Shephard, 2013). Slow fashion consumers are more likely to place emphasis on fit, quality, and investment, which is a strong contrast to the fast fashion consumer who focuses on quantity rather than quality (Watson & Yan, 2013). Pookulangara and Shephard's (2013) study found that young consumers who tended to place a higher priority on dressing on trend believed that the slow fashion lifestyle was more suited for their parents' generation unless the economic times were hard and they were looking to reduce consumption. From their study, the researchers were also able to conclude that young consumers felt that they did not have enough knowledge about slow fashion to make an informed decision.

Knowledge of slow fashion and fast fashion.

Knowledge can be categorized into subjective and objective knowledge. Subjective knowledge refers to how confident an individual is in his or her knowledge. Objective knowledge refers to only what the individual actually knows (Brucks, 1985). Brucks (1985) states that both types of knowledge likely play a role in consumers' levels of confidence and their decision-making behaviors. If an individual has a lack of confidence, he or she might have an increased motivation to search for more information.

Knowledge can have a role in sustainable consumer behavior, specifically apparel. If consumers are more aware about the impact of their clothing, then they could be more likely to make sustainable purchases. Kang, et al. (2013) found that there is a positive correlation between the consumer's knowledge and perceived personal relevance of sustainable clothing, in particular organic cotton, and their purchase intention. Specifically, the researchers found that if consumers knew more about sustainability, then they were more likely to purchase products made of organic cotton (Kang, et al., 2013). Their study was conducted just with the consumer's base level of knowledge; the difference of knowledge before and after education was not measured. Because slow fashion is a new term, it is very likely that consumers do not have enough knowledge to understand the environmental benefits of purchasing slow fashion clothing. More knowledge on slow fashion and its environmental benefits could lead to consumers having a more positive attitude towards slow fashion products and thus allowing consumers to shop more easily with the concept in mind.

In summary, research has shown that consumers did not feel that they had enough knowledge about slow fashion to make an informed purchase decision (Morgan & Birtwistle, 2009). There is also evidence to show that educational modules help raise awareness and change attitudes among different consumer groups (Dimopoulos, Paraskevopoulos, & Pantis, 2009). Thus, this study proposed the first two hypotheses examining the effects of an educational module featuring slow fashion on young adult consumers' knowledge, attitudes, and purchase intentions toward slow fashion products. Additionally, this study hypothesizes that purchase intentions toward slow fashion after the educational module will be predicted by consumers' objective knowledge, subjective knowledge, and attitudes toward slow fashion.

H1: Young adult consumers' a) objective knowledge and b) subjective knowledge about slow fashion will increase after being exposed to the educational module about slow fashion.

H2: Young adult consumers' a) attitudes and b) purchase intentions toward slow fashion will increase after being exposed to the educational module of slow fashion.

H3: Young adult consumers' objective knowledge, subjective knowledge, attitude toward slow fashion will predict their purchase intentions toward slow fashion.

Method

College-aged students were recruited for this study as they were the target market of fast fashion retailers (Morgan & Birtwistle, 2009). A mixed-method approach with three phases of data collection was implemented. Phase I: A preliminary focus group with four college-aged students was conducted to allow the researchers to gain more insights into consumers' understanding of concepts and to inform the survey development. Because slow fashion is a newer term and there are few studies on the subject, data collected from the focus group helped inform the development of the survey and educational program. The one-hour discussion was led by the researcher using open-ended questions developed from the literature review. Participants were college students, age 18 or older, and were interested in sustainable clothing.

During Phase II, pre-educational survey was given to undergraduate students in two different classes at a large western university. The survey was distributed during class and took approximately 20 minutes. The survey inquired about demographics, knowledge related to fast fashion and slow fashion (knowledge of the characteristics, brands, and environmental impact), attitude, and purchase intentions. The survey had multiple choice questions, true/false questions, and 7-point Likert scale questions with answers ranging from strongly disagree (1) to strongly agree (7). Participants were asked to include the last four digits of their student ID number to allow matching of responses so that a comparison can be made between the pre-educational and post-educational survey. Email addresses were collected so that students could be invited to participate in the post-educational survey. Student identities were kept anonymous. To encourage participation in the study, extra credit points were given to students who completed the survey, with instructor's consent.

Survey measures were compiled and modified from previous studies. The knowledge section was developed from the literature and Kang *et al.* (2013) and measured young adult consumer's subjective knowledge using 7-point Likert scale questions ranging from strongly disagree (1) to strongly agree (7). There were seven items measuring subjective knowledge; examples of these questions were "I know what slow fashion is" and "I know about the environmental impacts of my clothing." Objective knowledge was measured with eight items using true/false questions. One example item was "Fast fashion refers to a business model that is defined by high production, high consumption, and high disposal." When participants answered each of the true/false questions correctly, one point was assigned to that item when entering data, otherwise zero.

The attitude section was modified from Pavlou and Fygenon (2006) and Sparks and Shepherd (1992), the young adult consumer's attitudes towards slow fashion were measured with six items using 7-point semantic differential scales. Questions began with "My attitude towards slow fashion is" and the responses range from extremely negative (1) to extremely positive (7), extremely foolish (1) to extremely wise (7), extremely bad (1) to extremely good (7), extremely harmful to extremely beneficial (7), extremely unpleasant (1) to extremely pleasant (7), and extremely unfavorable (1) to extremely favorable (7).

The measure for purchase intention was modified from Pavlou and Fygenon (2006) and Sparks and Shepherd (1992), and was measured with two items using 7-point Likert scales from strongly disagree (1) to strongly agree (7). An example item was "In the future, I intend to purchase slow fashion apparel products."

Immediately after this survey was completed, the researchers presented an educational module in which information regarding the concept of slow fashion and the environmental benefits of purchasing slow fashion products as opposed to fast fashion products was highlighted. The educational module was created based on the literature review and was refined based upon data from the focus group. The module focused on the environmental benefits of slow fashion business model more than the environmental impacts of the fast fashion business model because this approach has been shown to be more effective in influencing consumer behavior (Chouinard & Brown, 1997; Hustvedt & Dickson, 2009). The presentation included information on the characteristics and environmental impacts of fast fashion, defining slow fashion and how it was a sustainable alternative. There was also some information tailored to the location to show participants where slow fashion could be purchased locally. Also, the module ended with a side-by-side comparison of a fast fashion T-Shirt and a slow fashion T-shirt. This approach was used after a suggestion from the focus group where participants said that knowing the impacts of fast fashion would help to highlight the benefits of slow fashion and that a comparison between specific products would be helpful. The module, in a PowerPoint presentation format, lasted approximately 30 minutes. Questions were asked during the presentation to check for understanding and to encourage critical thinking and small prizes were handed out. Howlett, Ferreira, and Bloomfield (2016) found that critical and reflective thinking helped college students to better understand the principles of sustainability. The module was then made

available on the professors' online course pages to serve as a reinforcement tool to further the learning outcomes.

Phase III began two weeks after phase II, when the post-educational survey in the online format was emailed to all participants from phase II and participants were given one week to complete the survey. The two to three week timeline was chosen because, according to a study by Morgan and Birtwistle (2009), the majority of fast fashion consumers typically go to fast fashion retailers every two to four weeks. The post-educational survey asked the same questions as the pre-educational survey. The initial email was sent two weeks after the educational module, with a follow up reminder email four days later. Extra credit was offered to students who participated in the post-educational survey, with the instructor's consent.

Results

A total of four participants were present for the Phase I focus group, two males and two females. Their ages ranged from 19-27 with a mean age of 24.5 years and the participants were juniors through graduate students. Three participants were Caucasian and one was Asian-American. The focus group lasted for 45 minutes and allowed for the refinement of the surveys and educational module.

Participants' answers aligned with the expectations from the literature review and confirmed that young adult consumers did not feel that they had enough knowledge and familiarity about slow fashion to make an informed purchasing decision. One participant stated, "I think that most of us can probably agree that sustainability is a good goal to strive for, so it's a positive in of itself. But it's hard to know about it unless you look for it. Unless you are familiar with a brand that has that as a core value." The focus group findings also informed an addition to the educational module regarding cost and footprint comparisons between a fast fashion shirt (a basic t-Shirt from H&M) and a slow fashion shirt (a basic T-Shirt from Zady) to better illustrate the durability of slow fashion garments.

Exploratory factor analyses with varimax rotation were conducted for the multi-item scale variables including objective knowledge and subjective knowledge of slow fashion, attitude, and purchase intention towards slow fashion. Some survey items were removed because of cross loading or low factor loading issues. Cronbach's alpha for all multi-item measures ranged from 0.76 to 0.96. Composite scores were calculated for each of the variables and paired-sample t-tests and multiple regression were conducted to test the hypotheses.

The first hypothesis was that young adult consumers' a) objective knowledge and b) subjective knowledge about slow fashion would increase after being exposed to the educational module about slow fashion. The variable "objective knowledge" was the result of adding a value of 1 for each of the eight objective knowledge questions (true/false) answered correctly. Subjective knowledge was the average of seven items from the subjective knowledge portion of both surveys. A paired-samples t test was conducted to measure whether there was any knowledge change due to the educational module. The results showed that participants' objective knowledge increased after the educational module ($M_{pre} = 7.21$ and $M_{post} = 7.60$, $t = 4.14$, $p < 0.001$). The results also

showed that participants' subjective knowledge increased after the educational module ($M_{pre} = 4.39$ vs. $M_{post} = 5.96$, $t = -11.27$, $p < 0.001$). Results were shown below in Table 1.

The second hypothesis was that young adult consumers' a) attitudes and b) purchase intentions toward slow fashion would increase after being exposed to the educational module of slow fashion. The variable for attitude was determined by the average of the six items for attitude from both surveys and a paired-samples t-test was conducted to measure any change due to the educational module. The results showed that participants' attitude towards slow fashion improved after the educational module ($M_{pre} = 4.71$ vs. $M_{post} = 5.40$, $t = -5.40$, $p < 0.001$).

The variable for purchase intention was determined by averaging the two survey items for purchase intention. A paired-samples t-test was conducted to measure the change due to the educational module. The results showed that participants' purchase intentions towards slow fashion improved after the educational module, however it was not significant ($M_{pre} = 4.74$ vs. $M_{post} = 4.78$, $t = -.40$). Results were shown below in Table 1.

Table 1: Comparison of Pre-Educational and Post-Educational Surveys

<i>Comparison of Pre-Educational and Post-Educational Surveys</i>			
<u>Items</u>	<u>M_{pre}</u>	<u>M_{post}</u>	<u>t</u>
Objective Knowledge	7.21	7.60	-4.14***
Subjective Knowledge	4.39	5.96	-11.27***
Attitude	4.71	5.40	-5.40***
Purchase Intention	4.74	4.78	-0.40

Note. Objective knowledge is the sum of the true/false items with the highest being 8 and the lowest being 0. Subjective knowledge, attitude, and purchase intention were tested on a scale from 1-7 where 1=Strongly Disagree and 7=Strongly Agree.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The third hypothesis was that young adult consumers' objective knowledge, subjective knowledge, and attitude toward slow fashion would predict their purchase intentions toward slow fashion, after being exposed to the educational module of slow fashion. Multiple regression was conducted to test this hypothesis. The results showed that the overall model was significant ($R^2 = 0.12$, $F = 7.37$, $p < 0.001$). Specifically, both subjective knowledge and attitude positively predicted participants' purchase intentions toward slow fashion ($\beta = 0.27$, $t = 3.56$, $p < 0.001$; $\beta = 0.16$, $t = 2.04$, $p < 0.05$, respectively); however, objective knowledge was not significant in predicting purchase intention toward slow fashion ($\beta = 0.00$, $t = 0.04$, $p > 0.05$). Thus, H3 was partially supported.

Discussion, Conclusions, and Future Research

Previous studies have shown that young adult consumers do not feel that they have enough knowledge about slow fashion and sustainable apparel to make an informed purchase decision (Pookulangara & Shephard, 2013). The

overall goal of this study was to educate young adults on the environmental impact of their purchasing behaviors of fast fashion products, to enrich the knowledge about slow fashion, and to see whether increased knowledge and attitudes would encourage more sustainable purchasing intentions toward slow fashion.

Paired-sample t-tests showed that the educational module significantly improved the participants' objective knowledge and subjective knowledge about slow fashion, indicating that exposure to education about slow fashion can increase the young adult consumer's objective knowledge. These results aligned with Hiller, Connell and Kozar (2012), who found that undergraduates' knowledge of the social issues surrounding the textile and apparel industry increased after a course on the specific subject. The change in subjective knowledge was also significant, which proves that exposure to education can have a substantial influence on young adult consumer's perceptions about how much they know about a topic. It is interesting to note that subjective knowledge about slow fashion was lower than objective knowledge, meaning that participants felt they knew less than they actually knew about slow fashion. This result was somewhat expected because "slow fashion" is a relatively new term and previous research has shown that the young adult consumer does not feel that they have enough knowledge about slow fashion to make an informed purchase decision (Pookulangara & Shephard, 2013).

The module also significantly improved the participants' attitudes towards slow fashion. This result aligns with the results of a study done by Ritter, Borchardt, Vaccaro, Pereira, and Almeida (2014) who found that information and knowledge helped shape Brazilian consumer's attitudes towards green products. Similarly, the result also mirrors the finding when the clothing manufacturer Patagonia suggested that attitudes towards organic cotton were improved after employees learned more about the processes for conventional cotton and organic cotton (Chouinard & Brown, 1997).

Purchase intention toward slow fashion did not change as a result of the educational module. The results showed improved purchase intentions among the participants; however, it was not significant, which was not unexpected. A study by Hiller Connell and Kozar (2012) revealed that undergraduate students reported purchasing behaviors towards sustainable products remained unchanged after a course on global production and distribution of apparel and textile goods. One possible explanation is that slow fashion tends to be more expensive than fast fashion. Additionally, Pookulagara and Shepherd (2013) found that younger consumers were more focused on trends and not as interested in investing in the longevity of their clothing as they viewed slow fashion as an ideal lifestyle that they would work towards but felt they could not currently afford it.

This study expanded the slow fashion research by incorporating consumer knowledge and attitude literature. Findings have suggested that a 30 minute educational module consisting of mostly text-based information with supplementary images made a significant, positive impact on young adult consumers' knowledge of and attitudes toward slow fashion. Unexpectedly, purchase intentions toward slow fashion among the participants did not increase. Financial restrictions experienced by university students could have

minimized their purchase intentions toward slow fashion apparel, which tends to be more expensive than fast fashion. Though the importance of price when shopping for clothing and the amount spent on clothing each month were asked in the survey, there was not a question about the financial means of the participants (e.g. their annual or monthly income) in the survey.

The regression results suggested that only subjective knowledge about and attitude toward slow fashion positively impacted participants' purchase intentions, but not objective knowledge. Although the regression hypothesis was not fully supported, finding of this study was consistent with the literature which suggested that subjective knowledge tends to play a more important role than objective knowledge in influencing consumer behavior (Brucks, 1985; Hansen & Yan, 2008). Additionally, the small R^2 in the regression results revealed that there are factors, other than increased knowledge, that might influence a consumer's purchase intention towards slow fashion.

The results of this study also provide practical implications for the apparel industry. Previous research has indicated that consumers do not feel that they have enough knowledge about slow fashion to make an informed purchase (Pookulangara & Shephard, 2013). The findings from pre-educational survey indicate that the young adult consumer had a high objective knowledge of slow fashion, but their subjective knowledge was lower, indicating that the participants did not feel that they knew that much about slow fashion. However, when a comparison was drawn between the knowledge in the pre-educational survey and the post-educational survey, results showed that a 30-minute educational module could have a significant impact on young adult consumers' level of knowledge. The module also had a positive impact on consumers' attitudes towards slow fashion, showing that education influences attitude. Slow fashion companies should consider marketing campaigns to educate target consumers about the environmental benefits of purchasing slow fashion and help develop more positive attitude towards their products. Companies could apply content of the module to educate consumers about the positive environmental benefits of their products in comparison to the negative environmental impacts of fast fashion. The comparison between fast fashion and slow fashion help to bring out the environmental benefits of purchasing slow fashion. The study also has implications from the education perspective. The module was organized to first show the negative environmental impacts of fast fashion and then presented slow fashion as a sustainable anecdote. Educators could use the module in a classroom setting when talking about sustainable apparel or the environmental impacts of the textile and apparel industry.

This study faced several limitations that must be considered when examining the results. The first being that only students enrolled in classes in the area of apparel and merchandising were tested. These students, mostly freshman and sophomore levels, may have had more knowledge about the environmental impacts of clothing and could have had a higher interest in learning about slow fashion than students outside the department. Also, a comparison between genders could not be observed because of the small proportion of male participants.

There are many opportunities for future research from this study. First, the sample of the study was restricted to college students based on a mixed-

method data collection approach. It is suggested that more diverse consumer groups such as high-school aged consumers can be further studied. Second, applying the theory of reasoned action, researchers can examine how increased knowledge and attitudes influence consumers' purchase intentions, along with subjective norm. Other variables that could be examined may include past socially responsible related behavior, moral values, fashion involvement, attitude towards fast fashion, environmental value, and perceived quality of fast fashion. Third, this study did not see a significant increase in purchase intention after the educational module. Future studies could examine different ways to change consumer knowledge, attitude, and hopefully purchase intention towards slow fashion. Other methods could be visiting a slow fashion store or seeing the clothing being manufactured first hand. Videos such as *The True Cost* (2015) or *Last Week Tonight with John Oliver* (2015) or field trips with more interactive experiences could be added to the educational module to hopefully produce different results. Fourth, college students' mental model of the environment and its relationship to clothing can be further studied as Wuellner, Vincent, and Felts (2017) suggested that mental models are situational, could be changed due to new knowledge or experience, and may help better understand how students will behave in their future clothing consumption decisions. Lastly, future research could be conducted to examine whether attitudes and purchase intentions towards slow fashion change as consumers age. Young adult consumers are more likely to be more interested in dressing on trend and are more likely to enjoy the fast paced nature of fast fashion, but see slow fashion as something more suited for older generations (Pookulangara & Shephard, 2013).

Disclosure statement

The Authors reported that no competing financial interest.

Notes on contributors

Rachel Preuit - Colorado State University, USA

Dr. Ruoh-Nan (Terry) Yan - Colorado State University, USA

References

- Arvola, A., Vassallo, M., Dean, M., Lampila, P., Saba, A., Lähteenmäki, L., & Shepherd, R. (2008). Predicting intentions to purchase organic food: The role of affective and moral attitudes in the Theory of Planned Behaviour. *Appetite*, *50*(2), 443-454..
- Beard, N. D. (2008). The branding of ethical fashion and the consumer: a luxury niche or mass-market reality?. *Fashion Theory*, *12*(4), 447-467.
- Bhaduri, G., & Ha-Brookshire, J. E. (2011). Do transparent business practices pay? Exploration of transparency and consumer purchase intention. *Clothing and Textiles Research Journal*, *29*(2), 135-149.
- Bluesign. (2013). Industry. *Bluesign*. Retrieved from http://www.bluesign.com/industry/brands#.VSKLPxPF_TQ
- Brucks, M. (1985). The effects of product class knowledge on information search behavior. *Journal of Consumer Research*, 1-16.
- Chouinard, Y., & Brown, M. S. (1997). Going organic: converting patagonia's cotton product line. *Journal of Industrial Ecology*, *1*(1), 117-129.

- Cooper, T. (2005). Slower consumption reflections on product life spans and the "throwaway society". *Journal of Industrial Ecology*, 9(1-2), 51-67.
- Corbett, J. B. (2006). *Communicating nature: How we create and understand environmental messages*. Washington, D.C.: Island Press.
- Cowan, K., & Kinley, T. (2014). Green spirit: consumer empathies for green apparel. *International Journal of Consumer Studies*, 38(5), 493-499.
- Crane, D. (2010). Environmental change and the future of consumption: implications for consumer identity. *Anuario filosófico*, 43(2), 353-379.
- Dimopoulos, D. I., Paraskevopoulos, S., & Pantis, J. D. (2009). Planning educational activities and teaching strategies on constructing a conservation educational module, *International Journal of Environmental and Science Education*, 4(4), 351-364.
- Fletcher, K. (2008). *Sustainable fashion & textiles: design journeys*. Earthscan, London, UK.
- Fletcher, K. (2010). Slow fashion: an invitation for systems change. *Fashion Practice: The Journal of Design, Creative Process & the Fashion Industry*, 2(2), 259-266.
- Flynn, K. (2014, August 27). Textile recycling: A for-profit startup success among controversy. *Forbes*. Retrieved from <http://www.forbes.com/sites/kerryflynn/2014/08/27/textile-recycling-a-for-profit-startup-success-among-controversy/>
- Hansen, L., & Yan, R. N. (2008). Behavioral intention to recycle: Knowledge and attitude. *ITAA Proceedings*, Schaumburg, IL, USA.
- Hepburn, S. J. (2013). In Patagonia (clothing): A complicated greenness. *Fashion Theory: The Journal of Dress, Body & Culture*, 17(5), 623-646.
- Hiller Connell, K. Y., & Kozar, J. M. (2012). Sustainability knowledge and behaviors of apparel and textile undergraduates. *International Journal of Sustainability in Higher Education*, 13(4), 394-407.
- Honoré, C. (2004). *In praise of slowness: How a worldwide movement is challenging the cult of speed*. New York, NY: Harper Collins Publishers.
- Howlett, C., Ferreira, J. A., & Blomfield, J. (2016). Teaching sustainable development in higher education: Building critical, reflective thinkers through an interdisciplinary approach. *International Journal of Sustainability in Higher Education*, 17(3), 305-321.
- Hustvedt, G., & Dickson, M. A. (2009). Consumer likelihood of purchasing organic cotton apparel: Influence of attitudes and self-identity. *Journal of Fashion Marketing and Management*, 13(1), 49-65.
- Joy, A., Sherry, J. F., Venkatesh, A., Wang, J., & Chan, R. (2012). Fast fashion, sustainability, and the ethical appeal of luxury brands", *Fashion Theory: The Journal of Dress, Body & Culture*. 16(13), 273-296.
- Jung, S., & Jin, B. (2014). A theoretical investigation of slow fashion: sustainable future of the apparel industry", *International Journal of Consumer Studies*, 38(5), 510-519.
- Kang, J., Liu, C. and Kim, S.-H. (2013), "Environmentally sustainable textile and apparel consumption: the role of consumer knowledge, perceived consumer effectiveness and perceived personal relevance", *International Journal of Consumer Studies*, 37(4), 442-452.
- Kim, H., Jung Choo, H., & Yoon, N. (2013), The motivational drivers of fast fashion avoidance. *Journal of Fashion Marketing and Management: An International Journal*, 17(2), 243-260.

- Kollmuss, A., & Agyeman, J. (2002). Mind the gap: Why do people act environmentally and what are the barriers to pro-environmental behavior?. *Environmental Education Research*, 8(3), 239-260.
- Leslie, D., Brail, S., & Hunt, M. (2014). Crafting an Antidote to Fast Fashion: The Case of Toronto's Independent Fashion Design Sector. *Growth and Change*, 45(2), 222-239.
- Morgan, L. R., & Birtwistle, G. (2009). An investigation of young fashion consumers' disposal habits", *International Journal of Consumer Studies*. 33(2), 190-198.
- Oliver, J. (2015, April 26). Season 2: Episode 35. Carvell, T., Taylor, J., Thoday, J. (Producers), *Last Week Tonight with John Oliver*. New York, NY: CBS Broadcast Center.
- Pavlou, P. A., & Fygenson, M. (2006). Understanding and predicting electronic commerce adoption: An extension of the theory of planned behavior. *MIS quarterly*, 30(1), 115-143.
- Polley, L. (2012, April 25). Introducing the New Footprint Chronicles on Patagonia.com. *The Cleanest Line*. Retrieved from <http://www.thecleanestline.com/2012/04/introducing-the-new-footprint-chronicles-on>.
- Pookulangara, S., & Shephard, A. (2013). Slow fashion movement: Understanding consumer perceptions-An exploratory study. *Journal Of Retailing And Consumer Services*, 20(2), 200-206.
- Ritter, Á. M., Borchardt, M., Vaccaro, G. L., Pereira, G. M., & Almeida, F. (2015). Motivations for promoting the consumption of green products in an emerging country: exploring attitudes of Brazilian consumers. *Journal of Cleaner Production*, 106, 507-520.
- Ross, M & Morgan, A. (2015). *The true cost*. United States: Untold Creative.
- Salazar, H. A., Oerlemans, L., & van Stroe-Biezen, S. (2013). Social influence on sustainable consumption: evidence from a behavioural experiment. *International Journal of Consumer Studies*, 37(2), 172-180. Shamuganathan, S., & Karpudewan, M. (2015). Modeling environmental literacy of Malaysian pre-university students. *International Journal of Environmental & Science Education*, 10(5), 757-771.
- Sparks, P., & Shepherd, R. (1992). Self-identity and the theory of planned behavior: Assessing the role of identification with 'green consumerism'", *Social Psychology Quarterly*, 55(4), 388-399.
- Timpson, W.M., Dunbar, B., Kimmel, G., Bruyere, B., Newman, P., & Mizia, H. (2006). *147 Practical Tips for Teaching Sustainability: Connecting the Environment, the Economy, and Society*. Atwood Publishing, Madison, WI
- Wanders, A.T., (2009). *Design critical texts: Slow fashion*. Niggli, Berlin, Germany
- Watson, M. Z., & Yan, R. N. (2013). An exploratory study of the decision processes of fast versus slow fashion consumers. *Journal of Fashion Marketing and Management* 17(2), 141-159.
- Weinberger, Y., & Dreyfus, A. (2013). Teacher college students' views of controversial environmental issues: Ambivalence and readiness to adopt a stance. *International Journal of Environmental & Science Education*, 8, 627-643.
- World Commission on Environment and Development. (1987). *Our common future* (Vol. 383). Oxford: Oxford University Press.
- Wuellner, M. R., Vincent, L., & Felts, B. (2017). Environmental mental models of college students. *International Journal of Environmental & Science Education*, 12(2), 105-115.