

TRADITIONAL TEXTILE REVIVAL:  
DEMONSTRATING THE POTENTIAL OF  
PIÑA FABRIC FOR APPAREL

By

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TRADITIONAL TEXTILE REVIVAL:  
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OF PIÑA FABRIC FOR APPAREL

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Abstract:

Piña fabric, which is made of pineapple fibers, has been a part of the history of the Philippine Islands for over four-hundred years. Historically, garments made of piña were mostly designed in the same way: light beige in color, use of embroidery and standardized styling. Today in the Philippines garments made from piña are used primarily for Filipino political and formal occasions. The traditional styling of piña garments does not attract attention from the Western market, therefore piña receives minimal exposure outside of the Philippines. This gap in piña fabric exposure framed the purpose of this design thesis: to demonstrate the potential of piña fabric for apparel in the Western market. The intent of this project was to help preserve the piña weaving craft and the production of piña fabrics in the Philippines because piña fabric has been found to be at risk of extinction.

Two frameworks drove the product development process: Ruppert-Stroescu & Hawley's (2014) A Typology of Creativity in Fashion Design and Development and Karl Aspelund's (2014) The Creative Process. Five ensembles were created using piña-seda (a piña and silk blend) fabric which was transformed by dyeing, draping, and cutting the fabric on the bias, then creating silhouettes including women's dresses, gowns, pants, and separates. It was discovered that piña-seda fabric can be machine washed and machine dried; however, hand washing and line drying is recommended. The fabric accepted fiber reactive dyes, however, dark colors were difficult to achieve. Fiber reactive dyes were discharged and overdyed without destroying the fabric. The piña-seda accepted iron-pressing on the silk setting. Irregularities in the fabric weave were discovered.

The result was a capsule collection for women targeted at a designer-level Western audience. An outside design expert evaluated the collection for its leadership design qualities and deemed the collection was appropriate for the Western market. The piña fabric surface finish and drape substantiated that piña-seda can be used to create garments that differ from traditional piña fabric garments of the Philippines. Further studies investigating the piña weaving and dyeing process and consumer perception of piña in the Western market are recommended.

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## CHAPTER I

### STATEMENT OF THE PROBLEM

Piña is a light, delicate, and translucent cloth woven from the fibers of the leaves of the Red Spanish Pineapple (de Carvalho, Fernandes, & Zabel, 2009; Milgram, 2005). Throughout the last four centuries, piña fabric was made and worn in the Philippines. Despite the colonization of the Philippines under both Spanish and American rule, piña fabric endured as a symbol of Filipino nationalism. Although piña fabric was an important part of the history, culture, and economy of the Philippines, as recently as 2007 piña fabric was found to be at risk of extinction (Hamilton, Milgram, & Fraser-Lu, 2007). In fact, since the mid-1800s piña fabric fell out of popularity due to two major factors: the influx of cheaper, mass-produced fabrics (Montinola, 1991), and cultural influences creating a desire for occidental, or Western styles of dress from the Western hemisphere (Milgram, 2005).

Interestingly, despite the mass-produced fabrics and styling influences from the West, garments made from piña fabric in the Philippines have remained largely uniform even to present day. For example, piña products have been typically a natural, neutral shade of beige or off-white. Also, silhouettes that use piña are typically cut in a specific traditional manner. Traditional dress has been defined as a type of dress that symbolizes the ethnicity of the individual (Chattaraman & Lennon, 2008). A notable example of Filipino traditional dress is the

men's national shirt, the *Barong Tagalog*, which is presently worn at weddings and political events. The *Barong Tagalog* (see Figure 1) is an outer shirt that is loose-fitting and has long sleeves with cuffs. This slip-on tunic shirt typically has a mandarin or convertible collar atop a long placket with button closures. Most commonly the embroidery or woven design is symmetrical and parallel to the placket.



*Figure 1. Barong Tagalog.* Reprinted from BarongsRus.com (2017), Retrieved January 22, 2017, from <http://www.barongsrus.com/barong/raya-barong-tagalog-4006-p-927.html>

In general, piña fabric has received little scholarly attention, except when piña was examined from an art history perspective. Those researchers looked at past decades to document traditional patterns, motifs, uses, and garment types (Montinola, 1991). There is a need to update literature written on the subject of piña and clothing made with piña because most of the published research was written in the 1990s (Coo, 2014). Through reviewing multiple sources such as books, photographs, and academic journals, mention of non-traditional piña fabric usage

primarily occurs in the popular press. This literature review reveals a gap in the literature: there is a lack of Western-styled clothing using piña fabric.

The purpose of this research was to demonstrate the potential of piña fabric for apparel other than traditional Filipino garments. The result of this design thesis was five ensembles of fashion apparel using piña-seda (a piña-silk fabric blend) where fabric dyeing and Western fashion styling was employed. The intent of this project was to contribute to raising awareness about the potential of piña fabric, with the hope of helping preserve the piña weaving craft and the production of piña fabrics in the Philippines. This thesis involved five years of development and field experience. Funded by a Fulbright grant, the research crossed international boundaries as well.

The methodology for this design thesis followed Ruppert-Stroescu and Hawley's (2014) *Typology of Creativity in Fashion Design and Development*. By following Ruppert-Stroescu and Hawley's attributes of leadership creativity throughout the design process, the resulting products sought to embody qualities of a product with leadership creativity. The leadership categories of high research and development, high selling price, innovative and directional nature of the product, high consumer taste level, highly-developed technique, low number of designs created and reproduced in a season, investment-worthy consumer perception and long life cycle of the product, and abstract source of design inspiration were identified by a fashion industry expert.

The design development followed the steps delineated in Karl Aspleund's (2014) *The Design Process*. Each step in the creative process was documented to illustrate the progression from concept to final designs. The seven steps of the creative process included; inspiration, identification, conceptualization, exploration/refinement, definition/modeling, production, and

communication (Aspelund, 2014). Evaluations were performed throughout the phases of the creative process to ensure goals and quality were met.

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## CHAPTER II

### SUMMARY OF SURVEYED RELATED WORK

#### **Piña in the Philippines**

##### **History**

The Philippines were colonized by both Spain (1565-1898) and America (1898-1946). In addition to the aforementioned colonial rule, several other countries have occupied the Philippine territory, which created hardship for the development of a Philippine national identity (Milgram, 2005). Despite these various outside influences, the importance of piña fabric has endured, and this locally-cultivated and produced textile is presently considered a national symbol of the Philippines (Milgram, 2005).

In the 1700s, piña garments were the preferred clothing of the lowland Philippine majority. However, during the 1800s, cheaper fabrics became available, and piña fabric became less abundant. From then forward, piña fabric was used by the upper-class as a sign of status and was exported by the Spanish as a commodity that would compete with European lace, popular in Europe, during the nineteenth century (Montinola, 1991). As international trade expanded, less expensive fabrics became available (Montinola, 1991). British and American factory-made fabrics symbolized the move to modernity and increasingly claimed the market for textiles in the

Philippines (Montinola, 1991). Thus, piña fabric fell out of favor in the Philippines by the mid-1800s and was replaced by more “modern” Western imports (Milgram, 2005). During that same time, piña exports fell dramatically because Philippine economic development shifted away from piña production, and instead focused on sugar cane (Montinola, 1991). In addition to the decline in piña fabric consumption, there was no attempt by the colonial governments to have piña fabric preserved or protected. Instead, the colonial governments marginalized the production by considering it “minor, small-scale and rural production dominated by women, and thus not a marker worthy of national endorsement” (Milgram, 2005, p. 244). During the earlier twentieth century, piña weaving had all but disappeared, reduced to a negligible cottage industry that responded to small, irregular orders (Montinola, 1991).

By the later twentieth century, the Philippines were free from American occupation. The President of the Philippines, Ferdinand Marcos, and the First Lady Imelda Marcos popularized wearing the national dress, the *Barong Tagalog* for men and the *terno* for women, as a symbol of Filipino identity (Roces, 2005). Presently, the *Barong Tagalog* is the traditional Philippine garment most popularly used by politicians and recognized internationally as Filipino dress for men (Roces, 2005). The most expensive and luxurious *Barong Tagalog* is made of one hundred percent piña fabric and features heavy hand embroidery. This premier outer dress shirt can cost as much as \$600 USD (BarongsRus, 2016).

### **Cultural Significance**

Even though the Philippines were occupied by the Spanish, Filipinos still had their piña-based unique style of clothing. Piña has historically been a prized possession, because of the beauty, expense, rarity and exotic origins of the fabric. During the 1860s, European royalty

received gifts of Philippine piña from dedicated countrymen to commemorate coronations and weddings (Montinola, 1991). In the late 19<sup>th</sup> century, garments made from piña were considered to be the most elegant apparel available for special occasions and rituals, appropriate to wear for royalty and colonial governments (Montinola, 1991). Furthermore, piña items were prized because the traditional textile skills were handed down from generation to generation (Montinola, 1991). During the nineteenth century, piña fabric was used in a variety of applications including women's dresses, men's shirts, children's clothing, fabric scrapbooks, and fabric swatches (Welters, 1997). Typical traditional silhouettes utilizing piña fabric were illustrated in Simon Flore's 1880 painting "Portrait of Cirilo and Severina Quiason and their Two Children," of note were the *camisa*, *pañuelo* and *Barong Tagalog*, all made of piña fabric and intricately embroidered (see Figure 2). Mr. Quiason commissioned this family portrait; he was in the landowning and trading businesses ("Conversations about Simon Flores y de la Rosa," 2010).





*Figure 2. Portrait of Cirilo and Severina Quiason and their Two Children.* Adapted from Pinoy artworks on view at the National Gallery Singapore: When art falls between declaration and dreams, In *Philstar.*, 2016, Retrieved January 22, 2017, from <http://www.philstar.com/sunday-life/2016/01/03/1538565/pinoy-artworks-view-national-gallery-singapore-when-art-falls-between>

Because of the transparent nature of the *camisa*, parish priests decreed that a detachable shawl collar [*pañuelo*] must be worn for modesty (Montinola, 1991). This decorative covering matched the *camisa* and was draped around the neck and shoulders; then the two ends were fastened together (see Figure 2). *Pañuelos* were most often triangular in shape, or a square folded

diagonally into a triangle. These neckerchiefs most often featured decorative embroidery which aided to preserve modesty (Montinola, 1991).

Twenty years ago, Montinola (1991) documented that piña garments held value for their owners. Montinola wrote that the desire for piña fabric could be seen in the resurgence of piña wedding gowns and christening robes. When piña items were well preserved, they were passed down from generation to generation (Montinola, 1991).

Piña fabric has endured over several centuries because of its beauty and rarity. Piña remains a part of the Filipino culture because it's worn at political events and weddings. Wealthy Filipinos have been painted and photographed in piña fabric garments because piña fabric is a symbol of national pride and prosperity.

### **Piña and Material Culture**

Fibers and fabrics are an important part of material culture (de Carvalho et al., 2009). In addition to an object's material and utilitarian value, objects reflected cultural beliefs and expression (Prown, 1982). In addition, human groups can be identified by their material culture (Hodder, 2000), which includes "traditional botanical knowledge" (de Carvalho et al., 2009, p. 1). The study of traditional botanical usage has led to important insights into the history of cultural uses that faced decline, and how their use had changed over time (de Carvalho et al., 2009).

Piña is made of leaf fibers from the Red-Spanish pineapple plant, and piña fabric had remained part of the material culture of the Philippine Islands for approximately 400 years. During the twentieth century, the Asian plant fiber weaving traditions, including ramie, piña,

hemp, abaca and other lesser known plant fibers became marginalized or hovered on the brink of extinction (Hamilton et al., 2007). These Asian leaf fibers have nearly been forgotten because of the proliferation of cotton and synthetic fibers (Hamilton et al., 2007).

This research demonstrates the potential of piña fabric for Western styled apparel by dyeing the fabric a range of colors, draping, and cutting the fabric on the bias, then creating silhouettes including women's dresses, gowns, pants, and separates, so that the collection titled Earthenwear, may renew interest in piña fabric production and use. Such a revival would allow for the continuation of Filipino generations that preserve their intangible cultural heritage by harvesting and weaving this culturally significant fabric. In addition, the expansion of the piña fabric industry would economically benefit the Philippines.

### **Economic Importance of Piña**

Since 2009, the piña industry has been run by small farmers who sought supplementary income (de Carvalho et al., 2009). Most piña cloth is produced in small workshops in the central Visayan provinces of Aklan and Iloilo, Panay Island, the lowland Christian areas of the Philippines most influenced by Spanish colonialism (Milgram, 2005). As of 2009, the "Aklan Province was the principal area where fibers for cloth making were being grown" (de Carvalho et al., 2009, p. 4). Official fiber statistic records issued by the Philippine Fiber Industry Development Authority indicated that demand for piña fibers has recently dropped. There has been a 37.4% decline in consumption between 2012 and 2014 (PFIDA, 2012 & 2014). However, according to the 2012 Philippine Statistical Yearbook, 13.05% of the nation's workforce was employed in the textile and apparel industry in 2009. Of that 13.05%, 25,767 were employed in the textiles industry, and 97,475 people were employed in the apparel industry (Borneman,

2013). The infrastructure, thus, clearly exists for expanded production of fashion apparel with piña fabric.

The cost of piña fabric remains a barrier to acceptance. Both historically and presently, items made of piña fabric have been expensive to purchase. Therefore, piña fabric has been most often owned by the wealthy (Milgram, 2005). The price of piña fabric and embroideries have always been high due to the time-consuming harvesting, preparation, weaving, and embroidery processes. For example, a person who wove a decorative pattern for eight hours a day may have only finished one-half to three-quarters of a meter of piña fabric (The Wonder of Exotic Pina Fiber, n.d.).

### **My Experience with Piña Producers**

I was first introduced to piña fabric in 2013 while vacationing in the Philippines. I thought the fabric was beautiful and had unique properties. I wanted to learn more about how pineapple fabric was made, so in 2014 I applied for a J. William Fulbright Fellowship. In late 2014, I was awarded a Fulbright grant to document textile artisans. The field experience took place from January until October 2015. During that time, I visited and made connections with many piña fabric stakeholders which included non-government organizations, government organizations, piña farmers, piña factory owners and weavers, and piña fabric retailers. The connections with these stakeholders allowed me to observe, document, and interact at each level of the piña supply chain. The following photographs documented my experience with the piña industry. A majority of my hands-on experience with piña occurred in the Aklan Province, in and around the town of Kalibo.

First, I visited pineapple farmers. Ms. Raquel Eliserio was pictured walking in her family pineapple farm (see Figure 3) in the Aklan Province while searching for mature pineapple leaves, approximately four feet high. She was surveying the crop to find the red pineapple fruit, which indicated the leaves were ready to be harvested. After locating a ripe plant, she ripped the leaves from the base of the plant, bare-handed, with a sharp jerk.



*Figure 3. Surveying ripe piña leaves in pineapple field (Montgomery, 2015).*

Next, I observed the manual fiber extraction of piña leaves (see Figure 4). After a brief demonstration and explanation, I participated and unskillfully performed the piña fiber extractions. It was my observation that much experience and patience is necessary to skillfully and expeditiously extract the piña fibers from the leaves. Shown in Figure 4, the fibers have been



stripped of the piña leaves. The piña leaf trash and residue are located in the upper right hand corner of Figure 4. I also observed the fiber processing and yarn making process.



*Figure 4.* Fresh piña fibers stripped from piña leaves (Montgomery, 2015).

Next, I toured Raquel's Piña Cloth factory (see Figure 5). Raquel's factory contained approximately thirteen manual looms. Most of the looms were made of metal because previously the factory experienced a major flood, and metal looms were determined to be a good replacement for traditional wooden looms. In addition to the weavers in the factory, there were also weavers who worked from their homes. The employees who worked from home often had household and childcare responsibilities in addition to their weaving.



*Figure 5. Raquel's Piña Fabric factory floor (Montgomery, 2015).*

Lastly, I toured and interviewed piña fabric retail business owners (see Figure 6). When I visited the piña retail stores, I realized there was a lack of fashion silhouettes and variety in the piña fabric products. I imagined what piña fabric could look like if it were transformed using Western fashion styling techniques, and thus the idea for this thesis was sparked.



*Figure 6. Raquel's Piña Fabric retail store (Montgomery, 2015).*

My passion was ignited after participating in this hands-on experience. I wanted to aid in preserving the cultural heritage of piña weaving. Having toured several mechanized fabric factories in North and Central America over the last decade, I was inspired to see the amount of physical interaction and intimacy these artisans had with their work. I was excited to see the amount of personal pride and expertise these artisans put into their craft. After I had watched the Filipino craftspeople, I realized the superior skill, patience, and attention to detail that was required for piña fabric to be made. My Fulbright experience allowed me to understand that piña cloth holds strong meaning for Filipinos regarding economics, history, and culture. My experiences with this piña industry prompted me to develop this design thesis to demonstrate the potential of piña fabric for Western fashion apparel.

### **From Piña Plant to Fiber**

Piña fibers are extracted from the leaves of the Red Spanish Pineapple (see Figure 7) (de Carvalho et al., 2009). Pineapple fibers are considered to be the most delicate of all fibers obtained from plants (de Carvalho et al., 2009). They have a creamy white color, a silky luster and easily absorb and retain natural or synthetic dyes (de Carvalho et al., 2009). Piña fabric also accepts prints easily, is water- and sweat-absorbent, breathable, and wrinkle-resistant (Wang & Zhang, 2009).





*Figure 7. Red Spanish Pineapple in bloom (Montgomery, 2015).*

The major pineapple growing countries in the world include Brazil, Thailand, the Philippines, Costa Rica, China, and India (Kannojiya, Gaurav, Ranjan, Tiyyer, & Pandey, 2013). When the pineapple is cultivated for fibers, the fruit is removed in an early stage so that the leaves achieve a greater length (de Carvalho et al., 2009). Interestingly, contrary to the process described in the literature, I observed the pineapple fruits are left on the plants. I also saw the leaf harvesters using these fruits to identify when the leaves were ready to be picked. The best piña fibers are produced when the plants grow in shady conditions (de Carvalho et al., 2009). Extraction methods can be categorized into manual and mechanical fiber extraction (Karthik, Rathinamoorthy, & Ganesan, 2015). In spite of the advancements in mechanized piña fiber extraction, such as the decortication and Raspador machines, hand piña fiber extraction is the most common and widespread method (Karthik et al., 2015).

**Manual fiber extraction.** I observed manual fiber extraction and learned that traditionally, eighteen-month-old leaves are harvested by pulling with a sharp jerk that breaks them at the base of the plant. The leaves must be hand-scraped in the first three days after the leaves are harvested (Karthik et al., 2015). The spiky spines along the edges are removed by hand (see Figure 8).



Figure 8. Red Spanish Pineapple leaf spike removal (Montgomery, 2015).

Then, leaves are laid on a narrow board and held in place with a foot. The fibers are unequally distributed near the upper and lower leaf epidermis, so usually the decortication process begins with the upper surface. The leaves are scraped with a broken, ceramic household plate, and the coarse fibers, called *bastos*, are removed. The leaves are then turned over, the process is repeated, and a broken coconut shell is used (see Figure 9) to extract the fine inner fibers from the underside of the leaves, called the *liniwan* or *linawan*; this fiber is used to make piña fabric (Davis, 1991).



*Figure 9. Manual extraction tools and piña leaves in process (Montgomery, 2015).*

The fibers are washed so that the plant material and debris are removed. The leaves then go through a drying process. Before they are completely dry, the leaves are whipped to separate the fibers and to ensure the remaining plant tissues are removed. After the drying process is complete, the individual fibers are knotted and coiled into a bun (Davis, 1991). Depending on the varieties, the individual fibers measure between forty and ninety cm long (Kirby, 1963). The knotting step was imperative because the threads needed to be joined for the yarns to be woven. Each fiber was individually tied end-to-end. Montinola (1991) wrote that, “knotting the fine piña fibers as close to the end as possible so as not to waste fiber is an ordeal to the uninitiated” (p. 63). Piña fibers were not spun together. As the yarns grew in length, the piña yarns were nested in a bowl of rice so they were less likely to stick together.

Another manual method for piña fiber extraction employs the process of retting, which involves softening pineapple leaves in water. The leaves are left to ferment where bacteria develops, which degrades the softer cells of the leaves, but the fibers remain unaffected. After retting, the fibers are removed and put through the same drying process described above (Karthik et al., 2015).

**Mechanical fiber extraction.** There are two methods of mechanical fiber extraction: the Raspador and the decortication machine. The Raspador method mechanically extracts the pineapple leaf fibers using the machine named the “Raspador.” A technician inserts multiple leaves into the electric device, and the leaves are mechanically beat to a point where the fibers and other organic material are separated. (Karthik et al., 2015). The second mechanical fiber extraction method consists of using a decorticating machine. In this mechanical method, the leaves are sent through the device while the fibers are scratched and pounded. (Karthik et al., 2015). After both of these mechanical methods the leaves are washed, dried, and the fibers were knotted using the same process as described above.

### **The Rise of Piña-Seda**

As early as the mid 2000’s Filipino designers have been utilizing piña-blended fabric in their fashion collections in non-traditional ways. These new collections used pineapple fibers mixed with silk to produce a new type of fabric, piña-seda. As of 2007, top Filipino fashion designers have used piña-seda because it is less expensive and more adaptable than pure piña (Hamilton et al., 2007). This unique combination of piña and silk evolved from the initiative of entrepreneurs Albert and Mary Cruz (Milgram, 2005). In 1995, Philippine agricultural colleges developed local sources of silk. Shortly after, the Cruzes started using silk as the warp, or

foundation yarns, developing a fabric called piña-seda – or pineapple-silk cloth. This initiative revolutionized the piña industry. Piña-seda was easier to weave, more flexible to wear and less expensive to produce than pure piña. Mixing the piña with silk enabled more people to work with piña (Milgram, 2005). Since 2005, the practice of combining pineapple and silk yarns has been widely adopted by other small producers in the Aklan Province, which has resulted in piña fabric being more widespread (Milgram, 2005).

### **Exhibitions and Contemporary Designers Featuring Piña**

In 1988, the Patronos de Casa Manila, an organization composed of stakeholders including artists, business people, and designers, spearheaded a revival of the piña industry (Milgram, 2005). Piña garments, when shown in museums, were typically exhibited under the broad scope of Filipinanna. However, *Sheer Realities: Clothing and Power in the Nineteenth Century Philippines*, a museum exhibit in Manila, New York City, and Seattle in 2000, focused on sheer piña garments, particularly ceremonial dress worn by social elites in the 1800s (Coo, 2014).

Some Filipino fashion designers supported the revival of piña cloth by designing collections around piña fabric. Then, those designers subsequently showcased the piña fabric garments in contemporary popular culture formats, such as fashion shows and in the popular press (Milgram, 2005). Recently, Filipino designer Fanny Serrano exhibited piña fashions during the 2012 Philippine Fashion Week (Legaspi, 2012). As seen in Figure 10, Serrano's collection uses boxy piña silhouettes and layered pieces.



*Figure 10. Fanny Serrano's piña collection.* Adapted from Tabula Rasa: Fanny Serrano's Patriotic Stance for Holiday 2012, In *Interaksyon.*, 2012, Retrieved January 22, 2017, from <http://www.interaksyon.com/lifestyle/tabula-rasa-fanny-serranos-patriotic-stance-for-holiday-2012>

Filipino native and Los Angeles based designer Oliver Tolentino has dressed celebrities, including Carrie Underwood and Maria Menounos, in piña gowns (Eslit, 2015), (see Figure 11). These floor-length, piña fabric gowns featured fitted bodices with sweetheart necklines and a high thigh slit. The piña fabric was dyed all-over and cut on the bias so that the attached skirts were form-fitting through the hip and draped well.





*Figure 11. Oliver Tolentino's piña gown.* Adapted from Fashion acknowledges piña fabric: The revival of an old industry, In *Wall Street International.*, 2015, Retrieved January 22, 2017, from <http://wsimag.com/fashion/14855-fashion-acknowledges-pina-fabric>

Despite the colonization, the influx of imports, and economic hurdles, piña fabric continues to be a hallmark of Filipino identity. Piña fabric has retained its premium status and is still considered a valuable asset, worthy of passing down through generations. Currently, piña fabric is still used for ceremonial events. However, despite attempts to revise the piña industry through exhibits and fashion shows which highlight piña garments, as recently as 2007, piña fabric was found to be at risk for extinction (Hamilton, Milgram, & Fraser-Lu, 2007). The intent of this project was to contribute to raising awareness about the potential of piña fabric, with the hope of helping preserve the piña weaving craft and the production of piña fabrics in the Philippines by demonstrating the potential of piña fabric for fashion apparel in the Western market.

## CHAPTER III

### METHOD

#### **Overview**

The purpose of this research was to demonstrate the potential of piña fabric for fashion apparel in the Western market. The result of this design thesis was five ensembles of clothing using piña-seda (a piña-silk fabric blend), where contemporary surface design and Western styling were used. Piña-seda fabric was utilized because it was more readily available, had a softer hand, and was more appropriate for the target market. Two frameworks drove the product development process: Ruppert-Stroescu and Hawley's (2014) *A Typology of Creativity in Fashion Design and Development* and Karl Aspelund's (2014) *The Creative Process*.

#### **Typology of Creativity in Fashion Design**

To focus on the creative process, the work was situated within the typology of creativity for fashion design. Creativity can be placed on a continuum where at the extreme ends lay "Leadership Creativity" and "Adaptive Creativity" (Ruppert-Stroescu & Hawley, 2014). Leadership Creativity tends to focus on product design and its uniqueness, whereas Adaptive Creativity tends to focus on the design process by establishing efficient management of operations, materials, and production methods to bring costs down (Ruppert-Stroescu & Hawley,



2014). It is difficult to determine the highest level of Adaptive Creativity when seeing the final product because the creative emphasis focuses on planning, organization, and problem-solving processes (Eckert & Stacey, 2003). Neither Adaptive nor Leadership Creativity is better than the other when designing and developing products; there is no hierarchical structure (Ruppert-Stroescu & Hawley, 2014). According to Ruppert-Stroescu and Hawley (2014),

A company's strategic plan may draw on both types of creativity by designating specific lines to specific categories, by combining Leadership and Adaptive Creativity into one line, or by applying Leadership Creativity to one component of the product, such as the textile, and Adaptive Creativity to another component, such as the garment. (p. 22)

To better delineate between these types of creativity, Ruppert-Stroescu and Hawley (2014),

designated eight attributes related to influences upon creativity in fashion design and development: (1) research and development, (2) selling price, (3) nature of the product, (4) consumer taste level, (5) technique, (6) number of designs created and reproduced in a season, (7) consumer perception and life cycle of the product, and (8) source of design inspiration. (p. 16)

This design thesis considered these attributes of Leadership Creativity for fashion design and development.

To evaluate the collection for its Leadership Creativity qualities, an outside design expert was consulted. The expert was chosen because of her experience working for an haute-couture designer in Paris. The expert was identified by convenience sample because she was affiliated with the University alumni network. The expert reviewed the project via online video conference. The video conference began with an overview of the collection. The forty-minute

presentation included an explanation of the Earthenwear inspiration, a description of the customer, trend, and season. Then the expert followed up by taking an online survey to determine the leadership qualities of the Earthenwear collection (see Appendix A). The survey questions addressed Ruppert-Stroescu and Hawley's eight attributes of leadership creativity.

By following Ruppert-Stroescu and Hawley's attributes of leadership creativity throughout the design process, the resulting products sought to embody qualities of a product with leadership creativity. The sections below documents the eight attribute areas of leadership creativity.

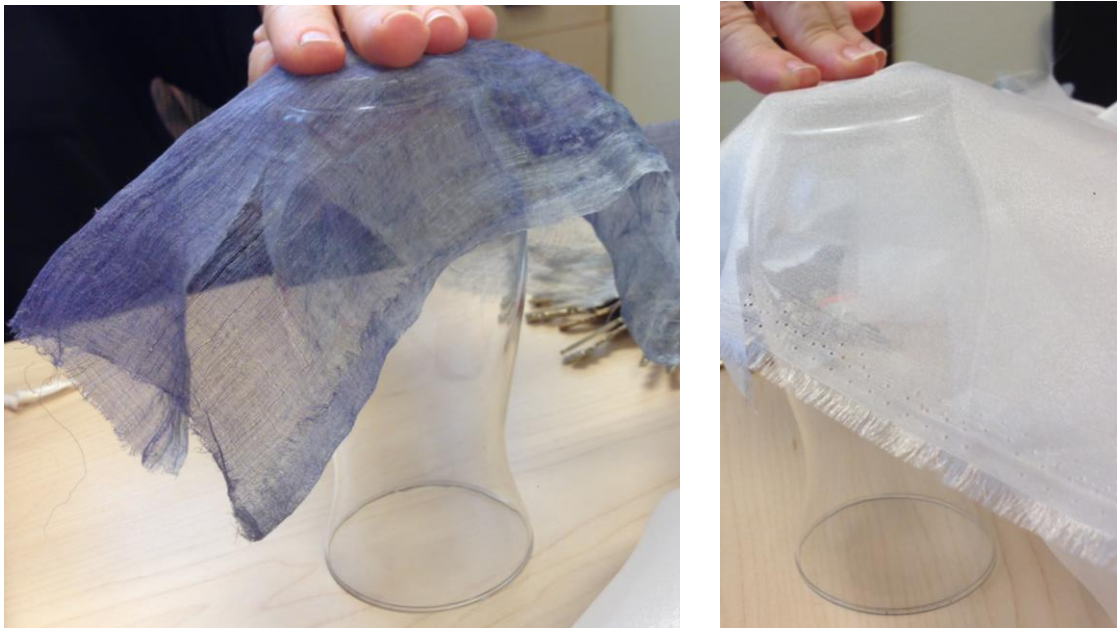
### **Research and Development**

Considerable attention was given to material and form as well as research and experimentation. This was executed by experimenting with Western style silhouettes in piña fabric (see Figure 12).



*Figure 12.* Experimental piña fabric draped (Montgomery, 2016).

Experiments to determine the drape of the fabric were conducted to find the most appropriate prototype fabric to drape most closely to piña-seda; polyester organza was determined to react most similarly (see Figure 13). While polyester organza was used to drape the voluminous piña-seda features, cotton muslin was used to create the pieces when the body, underlining and lining were present.



*Figure 13: Draping experiment with piña-seda and polyester organza fabric (Montgomery, 2016).*

Swaths of polyester organza were draped so that dramatic features of the fabric could be explored (see Figure 14).



*Figure 14: Draping exploration for volume and design silhouettes (Montgomery, 2016).*

Also, surface design methods were explored which included pot dyeing, ombré dyeing, fabric painting, dye clamp, and foiling (see Figure 15). These techniques were chosen for experimentation because they were not seen in traditional Filipino piña fabric garments and had the potential to show the effect of age on piña fabric. In addition, significant investment was made in identifying this opportunity and networking to meet piña fabric stakeholders who could supply the raw materials.



a.

b.

c.

*Figure 15.* Textile surface techniques explored, from left to right, a) fabric painting using thickened dye, b) ombré dyeing, c) foiling and fabric painting with fabric paint (Montgomery, 2016).

## **Selling Price**

The collection targeted luxury level consumers, that is those who value quality, aesthetic beauty, exclusivity, and pay high price for goods (Jung Choo, Moon, Kim, and Yoon, 2012). Designing with these customers in mind allowed for creative freedom. These garments were developed so that price constraint did not inhibit the creative process. In addition to the piña-seda fabric, premium silk underlinings and linings were used in each ensemble. The collection was not intended for mass production. The piña draping that adorned the garments was hand-tacked and assembled. Additionally, each ensemble was hand-painted and one-of-a-kind.

## **Nature of the Product**

The piña-seda fabric was expensive, rare, and of exotic origins. It was purchased directly from weavers in Aklan, Philippines for twenty USD per yard. However, if the fabric had been purchased from an online distributor, the cost would have surpassed eighty USD per yard (Corbet, 2015). Also, piña-seda is not widely distributed internationally, thereby making the fabric scarce and exclusive.

## **Consumer Taste Level**

These garments were designed with a discerning customers in mind. The quality of fabric, findings, and surface design attempted to appeal to those who value unique design, high-quality apparel and are fashion innovators.

## **Technique**

The collection featured a surface design technique called color washing which was adapted from the visual arts (see Figure 16). In addition, a mixture of pattern making methods were used to create the garments. Flat-pattern techniques were used to create the main body pieces and draping was used to create the unlined, voluminous piña features such as epaulets, back drapes, necklines etc. The draping method was utilized on these pieces so that the shape and fullness would be dictated by the parameters of the fullness and body of the piña-seda fabric.



*Figure 16. Piña-seda fabric in the process of being color washed (Montgomery, 2016).*

Fabric drape can be seen on each silhouette. Quality craftsmanship techniques were used to construct the collection; for example, hand stitching was utilized to tack dramatically draped pieces. Additionally, each ensemble had three layers: the body, underlining, and lining.

### **Number of Designs Created and Reproduced In a Season**

The intent of this design thesis was to create one-of-a-kind garments. Therefore, mass appeal or mass-production limitations were not heavily considered. The final collection consisted of five ensembles, containing seven pieces total. A capsule collection of five ensembles was designed and constructed.



## Consumer Perception and Life Cycle of the Product

The design research attempted to be worthy of investment due to the timeless aesthetic, high price, and exoticism of the fabric. The ensembles were designed with durable closures and edge finishes. Also, a high stitch-per-inch count (between 12 to 18 stitches-per-inch) were used on the lock-stitch seams. These garments were intended to physically endure for an extended period.

## Source of Design Inspiration

Inspiration came from a variety of sources, both abstract and tangible. In pure Leadership Creativity, inspiration comes from primary, abstract sources that are not related to the item being designed. To look for inspiration, I researched in the archives of the Oklahoma History Museum in Oklahoma City. Two dresses from the 1920's influenced the design for the fullness in the back of the dresses and the curvilinear lines throughout the collection (see Figure 17).



*Figure 17.* Historical clothing archive at Oklahoma History Museum (Montgomery, 2016).

I was also inspired and influenced by the painting “Sky Chord” by Sam Gilliam, exhibited at the Oklahoma City Museum of Art. “Sky Chord” was created by the color washing



technique. Color washing is a free-form painting technique that blends and bleeds colors into a canvas to create depth and visual interest. In “Sky Chord” red, blue and a yellow were tinted, brushed and blended onto the canvas which gave the effect of an aged and natural look (see Figure 18). Also, the movement of the strokes did not appear restrained or tethered to perfection. These concepts were explored in the mood board and customer board, and translated to the surface design of the piña-seda fabric.



*Figure 18. Sky Chord.* Reprinted from Okcmoa.com, In *Pinterest*, n.d., Retrieved January 22, 2017, from <https://www.pinterest.com/source/okcmoa.com/>.

Furthermore, I was inspired by the field research that I conducted during my Fulbright grant. While employed as a professional designer I worked with mass-produced, synthetic fabrics. Conversely, it was exciting to see the weavers so intimately involved with the production of the fabric from harvesting the pineapple leaves to finished goods. Thus, following footsteps of the artisans I observed, I focused on the tactile and manual aspects of the collection development.

## The Creative Process

The seven steps of the creative process included inspiration, identification, conceptualization, exploration/refinement, definition/modeling, production and communication (Aspelund, 2014). Aspelund's (2014) design process model was chosen because it was similar to the product development process I followed as a practicing designer in the apparel industry. Each step in the process was photo-documented.

### Inspiration

Aspelund's first product development stage, inspiration, recommended seeking information from a variety of media (2014). Documented research was conducted on modern and historical clothing trends from books, photos, illustrations, museum archives, and museum exhibitions (see Figure 19).



*Figure 19.* Reviewing inspirational sources inside museum archives (Wei, 2016).

The online fashion and style forecasting websites style.com and wgsn.com were analyzed to identify trends relevant to a consumers with a high taste level. WGSN's Winter 2017 *Future Trend Report - Earthen* captured the zeitgeist of consumers returning to the aesthetic of nature and effects of time. These concepts drove the mood of this collection.

## **Identification**

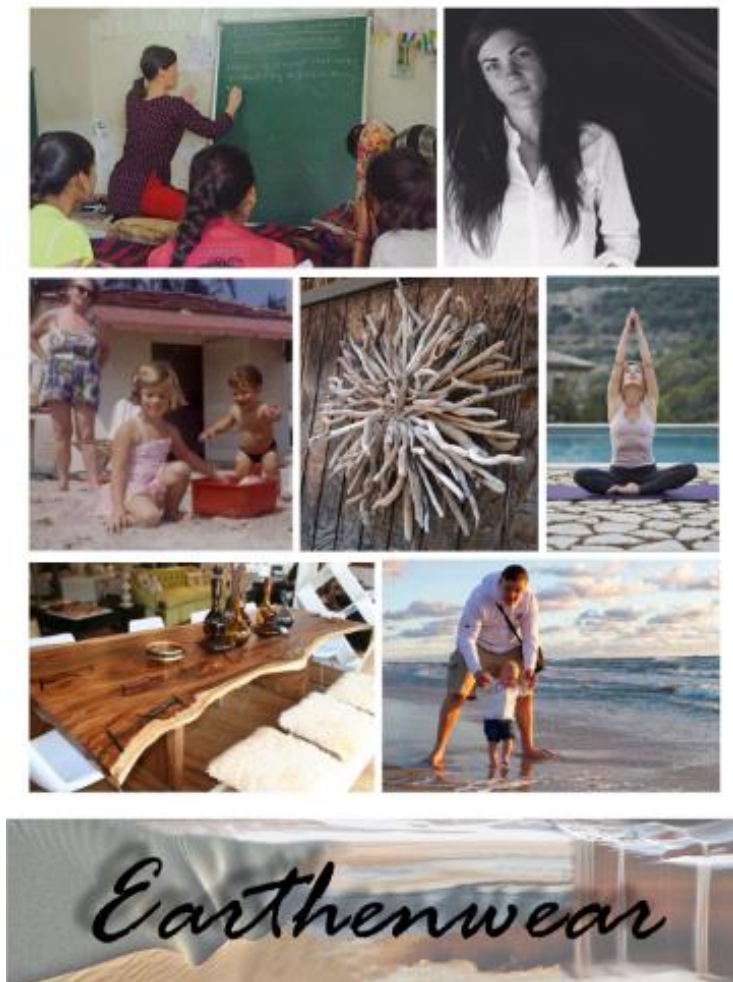
In the identification stage, I created a foundation to support the development of the collection. Three main areas were addressed: identifying the collection season, target market, and obstacles.

Because piña fabric is so light and airy, the collection was designed for the resort season. The resort season targets affluent customers from the northern hemisphere who travel internationally to vacation before the spring/summer clothing season is available (Wong, 2013). Also, the fabric lends itself well to beach environments and hot weather because, according to Wang and Zhang (2009), piña fabric is water- and sweat-absorbent, breathable, and wrinkle-resistant, which would be suitable at a resort or on a cruise.

The target customer for this resort collection was a woman in her mid-twenties through mid-fifties. She was university educated and married. She valued balancing her family and wellness. Her husband had a significant income which allowed her to be a stay-at-home mom to her two children and volunteer as the family schedule allowed. She was active in local philanthropy events and hosted an annual fundraiser. Her mother was involved in her life and with her children. She was an independent thinker and was known to be a genuine person. She practiced yoga and meditation; her other hobbies included creating found object art that she sold

at a boutique as a hobby. Her home was furnished in natural and time-weathered items. She recycled and made an effort to make ecologically responsible decisions; for example, instead of dry-cleaning she preferred to hand-wash her garments. A customer board was created to explore and illustrate her values and lifestyle (see Figure 20).

These garments were designed to be distributed in luxury specialty retailers such as Barney's or small luxury specialty boutiques where the specified target customer would shop. The retail price for this line ranges from \$750 to \$2500 per ensemble.



*Figure 20. Customer board (Montgomery, 2016).*

In the second portion of the identification phase, time constraints were identified, a budget was created (see Appendix B), and solutions were developed. A plan to source materials and findings was made. Because this design thesis focused on a non-traditional, Western aesthetic, the traditional Filipino aesthetic was identified by reviewing books, photos, illustrations and competitive shopping. A list of criteria representing traditional piña usage to avoid was created, so that the Western piña fashion apparel would be distinct. The Western styles should not 1) remain a completely solid natural color, 2) be decorated with embroidery, 3) have a pattern containing wide checks or wide vertical stripes, 4) include silhouettes using an empire waist.

Another constraint was the expense and location of the materials. To control costs, bids were solicited from three piña-seda fabric producers. The piña fabric production was awarded to the contractor who provided the widest width goods and who was most responsive to online correspondence.

## **Conceptualization**

In this stage, a design direction was conceptualized. Images, colors, and textures were joined to create a mood board to convey the feeling of the collection (see Figure 21). Design influences, such as the appearance of natural aging and the effect of time, were illustrated on the mood board.



*Figure 21. Mood board (Montgomery, 2016).*

Characteristics of piña fabric were explored, which included drape and hand. Experimentation with the surface design was inspired by this mood board.

### **Exploration/Refinement**

In this phase, approximately forty-five croquis were generated. The croquis were evaluated and ten ensembles were chosen to be sketched and manipulated in Adobe Photoshop. Accompanying technical flats were created in Adobe Illustrator (see Figure 22). These designs included flowing curvilinear lines that were evident in the mood board.



Also, regular design meetings with my adviser guided design development. The color story and materials were proposed on a fabric board (see Figure 23).



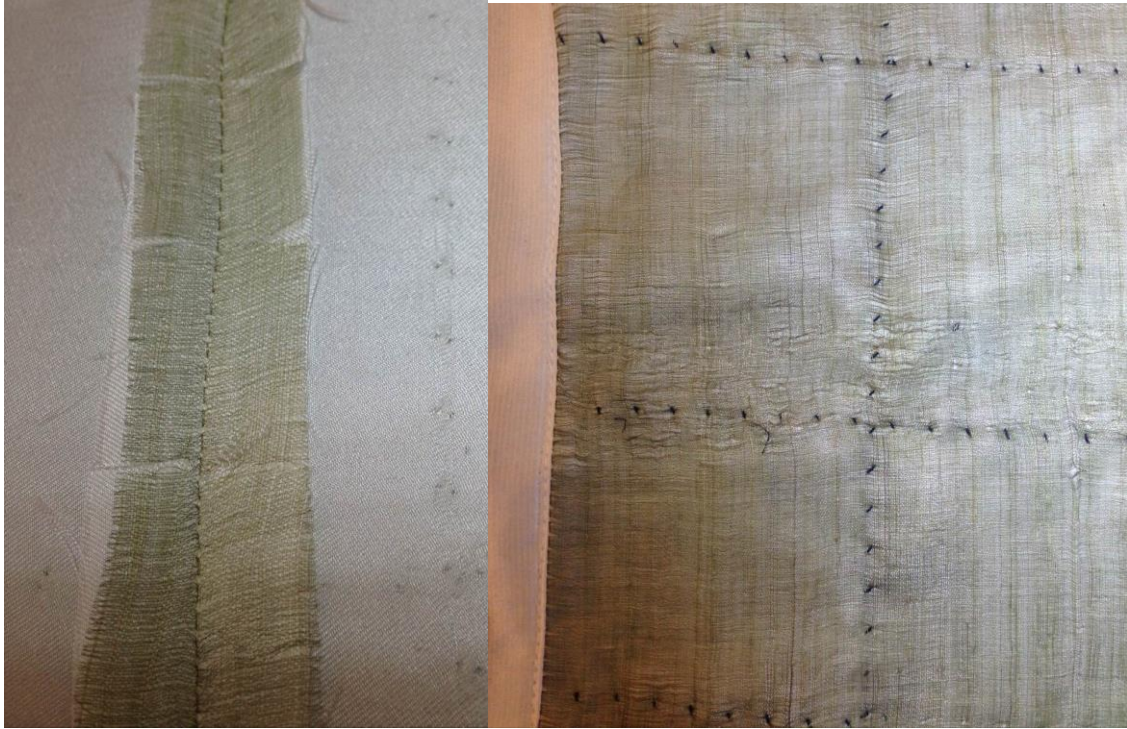
Figure 22. Fashion sketches and technical flat sketches (Montgomery, 2016).



*Figure 23. Fabric board (Montgomery, 2016).*

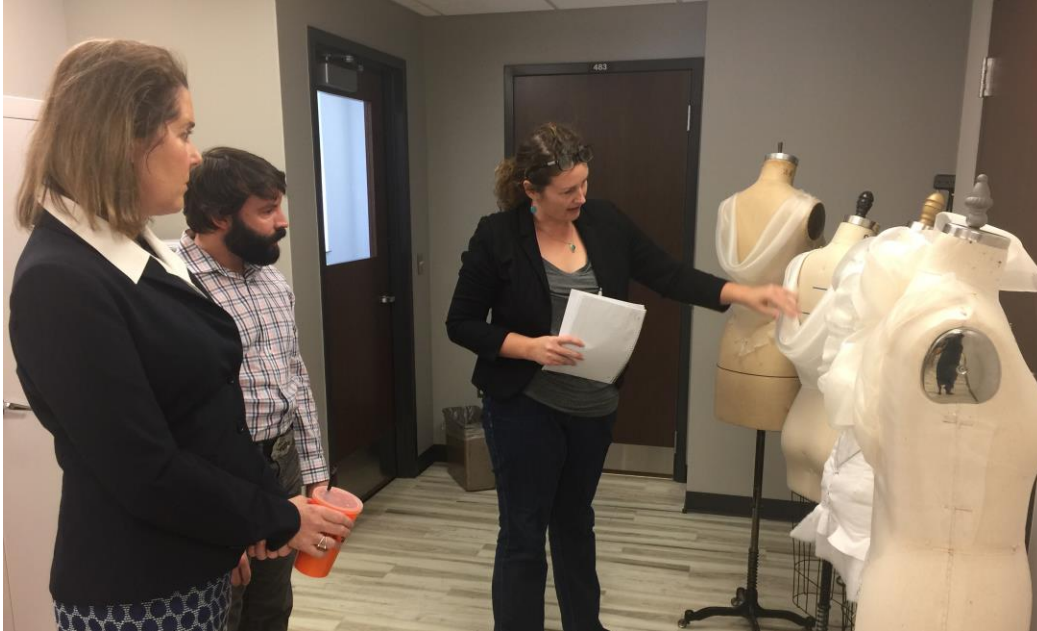
Seaming and construction techniques were tested on swatches of piña-seda and silk fabrics (see Figure 24). When using a lock-stitch machine, it was determined that needles size 10 and below must be used to prevent needle cuts. This exercise also revealed that hand basting was necessary because blind-stitch machine basting caused needle cuts and piña fiber separation.





*Figure 24. Seaming technique samples (Montgomery, 2016).*

Near the end of the exploration/refinement stage, a thirty-minute presentation was made, where the fabric board, customer board, mood board, sketches and flat sketches were presented to the thesis committee for approval and to commence to the definition/modeling phase. The committee determined at this meeting that further experimentation was needed to understand the capabilities of the piña fabric and to verify that what was drawn was capable of being created in the piña fabric. At the follow-up meeting, the committee was shown samples illustrating experimentation to highlight the body and translucence of the piña fabric. This included creating a cowl, tube, ruffles, gathers, epaulets and demonstrated twisting the fabric (see Figure 25). A majority of these additions were adapted into the final collection to put an emphasis on the beauty of the fabric. Silhouettes were switched to create a well-rounded collection. At the conclusion of this meeting, the five ensembles were chosen.



*Figure 25. Committee collection review meeting (Ruppert-Stroescu, 2016).*

### **Definition/Modeling**

Patterns were made by draping and flat pattern methods. Design cards accompanied the patterns and fit logs documented the fitting and correction process. All ensembles were fit on a live model. Each piece required between two to six fittings (see Figure 26). Next, the full muslin collection was reviewed by the thesis committee for continuity to ensure the collection was cohesive (see Figure 27). Small corrections were given, and patterns for the collection were approved by my adviser to be constructed in the final fabric.



*Figure 26. Model fitting (Montgomery, 2016).*



*Figure 27. Muslin review meeting (Montgomery, 2016).*

## **Production**

In the production phase, the piña-seda fabric was scoured, dyed, and then the garments were assembled. First, the fabric was scoured by hand washing using Synthropol® detergent, then rinsed with water. Second, Procion® MX Fiber Reactive Dyes were prepared and painted directly on the piña-seda fabric with a 2” acrylic paintbrush. Inspired by the depth and unrestrained nature of the color washing technique, a portion of each dye was tinted with a brown dye that had sodium alginate added and stirred by hand. The location of the clumps of sodium alginate created additional shading. This method was used to generate the aged and weathered effect that was seen in the mood board. On the long dress, only the base colors of the collection were applied to the skirt; therefore, sodium alginate was not used. Both salt and vinegar were used as dye fixatives. The dyed fabric was washed by machine with Synthropol®



to rinse the colors. The fabrics were line dried (see Figure 28). Each fabric underwent one color washing with the exception of the autumn leaf color.

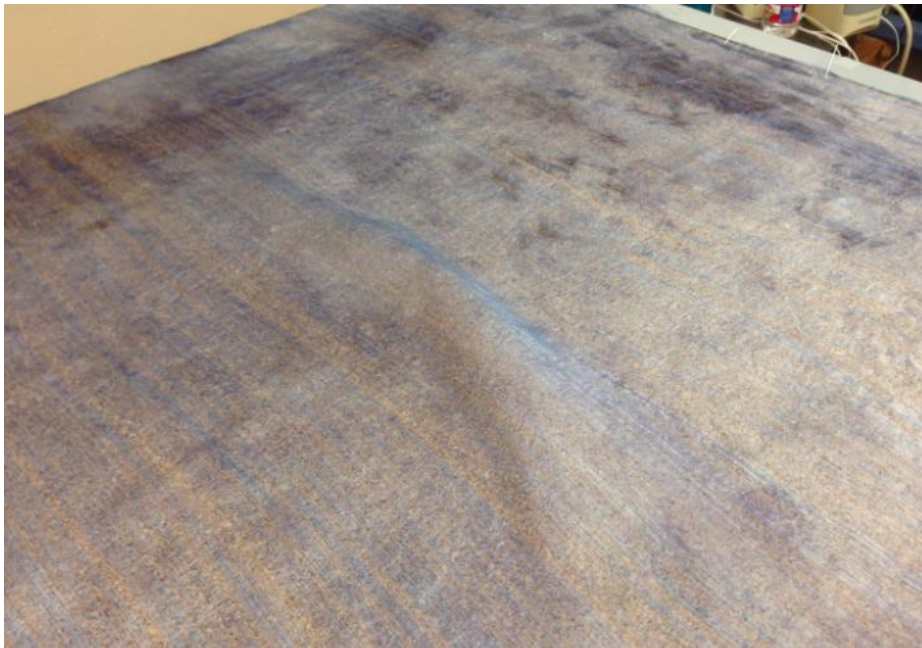
When the autumn leaf was color washed, heavy spotting resulted created by the sodium alginate. The spotty composition was not cohesive with the decorative finishes on the other piña-seda fabrics. To parallel the other fabrics, the autumn leaf color was discharged, and the fabric was dyed a second time. The second dying resulted in a bright pink color, because too much of the dye was washed out when the newly dyed fabric was machine washed. This bright pink was not the intended final shade. Therefore, the piña-seda fabric was overdyed with a higher dye-to-water concentration in order to achieve the final desired color.



*Figure 28.* Dyed piña-seda fabric in dried moss, sky, sand at sunset and autumn leaf before over dyeing (Montgomery, 2016).

The final collection was cut and sewn from the patterns developed in the modeling phase. During the production phase, it was discovered that the piña-seda fabric had irregularities which created difficulty when cutting, sewing and fitting the pattern pieces (see Figure 29). To verify the irregularities, the piña-seda fabric was laid flat on a cork top table and the grain was aligned to the x and y axis at a ninety degree angle. Although the warp and weft fibers were tediously

pinned to the edges of the table, large mounds of fabric billowed up. The fullness in Figure 29 is approximately seven inches long, three inches at the widest point, and one inch at the highest point. I attempted to work the fullness back into the weave by steaming and manually patting the fibers, but this was unsuccessful; when the fabric was moved off the table, the irregularity would return. To obtain the most consistently flat fabric, the billows were cut around as much as possible, and pattern pieces were cut open, not folded. However, even with these precautions, some billows were evident at the piña fabric garment fitting. These billows occurred on three of the five ensembles. The solution employed to flatten the billows by opening the seams and working the fabric with the finger, pushing the excess fabric toward the edge, and re-cutting the pattern shape.



*Figure 29.* Irregularity in piña-seda fabric (Montgomery, 2016).

Each garment in the collection was constructed with the same high-end techniques. All garments were constructed of three fabric layers, a piña-seda layer which was hand basted and

underlined with one hundred percent silk twill, lined with one hundred percent silk habotai. For each body piece, the piña-seda was placed over the silk twill. To assure cohesion of the two layers, the lengthwise and crosswise grains were hand basted through both layers at 4” to 6” intervals, depending on the shape of the piece. The necklines and armholes were stabilized with weft-insertion interfacing and under stitching. All seams were hidden, this was accomplished in two ways, 1) shoulder, neck, and armhole seams were sewn inside-out, the shoulder seam was pulled to the right side and the remainder of the garment was closed inside-out at the side seam, or 2) the waistbands were sewn inside-out and the remainder of the garment was closed inside-out and closed at the side seam. The hems of the piña-seda/underlining body were sewn with hem tape, then blind-stitched by hand, and the lining layer was machine hemmed and remained unattached. All ensembles had bust darts, an invisible zipper and hook-and-eye closure at the left side seam. When the piña-seda was not underlined, as on the neck details and back flares, it had a narrow edge finish sewn with a Juki MO-6704S marrow edge finish machine.

## **Communication**

To evaluate the collection for its leadership design qualities, an outside design expert was contacted to review the Earthenwear collection. The interview and survey were reviewed and approved by the Oklahoma State University Institutional Review Board (see Appendix C). The expert reviewed the project via online video conference. The video conference began with an overview of the collection. The forty-minute presentation included an explanation of the Earthenwear inspiration, a description of the customer, trend, and season. The expert’s comments were recorded via video screen capture and transcribed. Then the expert followed up by taking an online survey to determine the leadership qualities of the Earthenwear collection (see Appendix A). The survey questions addressed Ruppert-Stroescu and Hawley’s eight attributes of

leadership creativity. The results of the interview and survey are summarized in the Results chapter of this thesis.

An exhibit was held at the Design, Housing and Merchandising Gallery at Oklahoma State University from February 9<sup>th</sup> through February 16<sup>th</sup>, 2017. A public gallery talk occurred during the exhibit week. To visually communicate the line and concept, a mood board, customer board, fabric board, flat sketches, sketches, and photographs were presented. Patterns, design cards, muslin samples were shown. Garments were displayed on mannequins.



## CHAPTER IV

### RESULTS

The result of this design thesis was the development and execution of five ensembles using piña-seda (a piña-silk fabric blend), where contemporary surface design and Western styling were used. The intent of this project was to help preserve the piña weaving craft and the production of piña fabrics in the Philippines.

In this section, hand sketches, flat sketches and the finished garments were analyzed and discussed for each ensemble in the collection. First, a description of the ensemble's design and structural features accompanied the drawings. Next, each garment's initial flat sketch and revised flat sketch were explained to illustrate the transformation of the design. Then, a final photograph of the finished and fitted garment was shown on a model. A description follows that establishes details that distinguish these designs from traditional piña garments. After the collection results, there was a section that discussed the results from the interview with the "leadership creativity" expert.

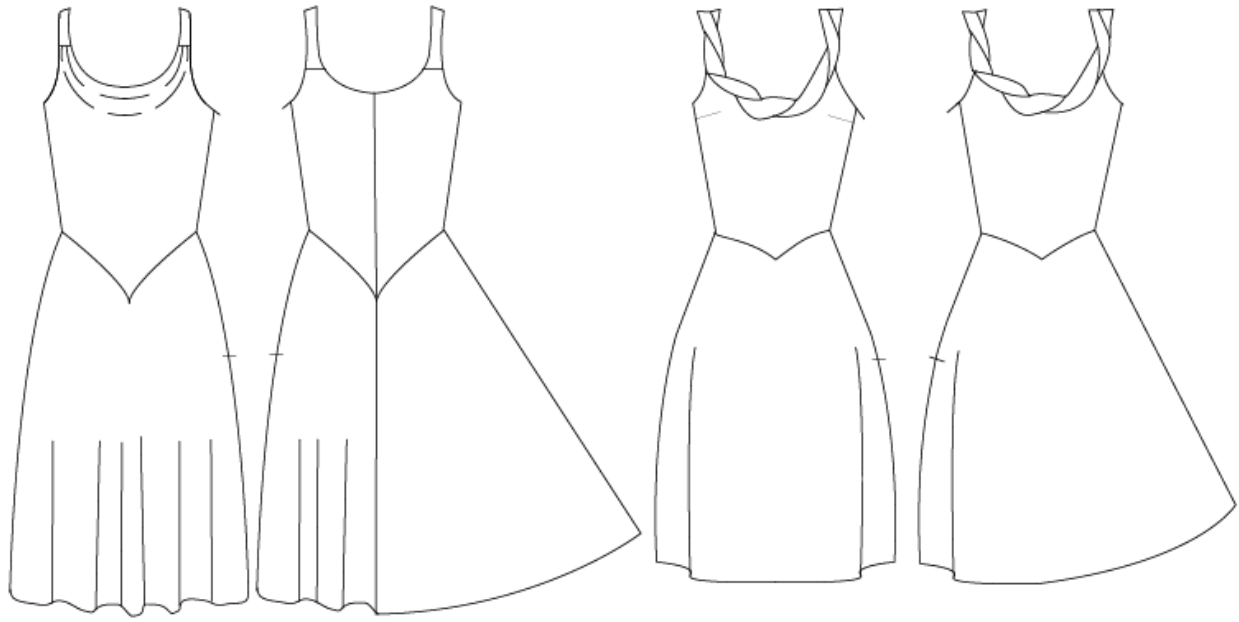
During the production phase, it was discovered that the piña-seda fabric had billowing which created difficulties when cutting, sewing and fitting the garments. To understand where the fabric billowing originated, an examination of the piña-seda fabric was conducted. The billowing occurred in the original piña-seda fabric that was delivered by the weavers.

### **Garment 1: Style E111**



*Figure 30. Style E111 Sketch (Montgomery, 2016).*

Style E111 (see Figure 30 and Figure 32) was an above-the-knee, scoop-neck dress designed to be worn for lunch, dinner, or a party. It featured a dusty-pink, color-washed piña-seda fabric and had a decorative twisted piña-seda neck finish on its front and back. The hem of the skirt flared, and moved as the wearer walked. This dress differed from traditional piña-fabric garments because the bodice was fitted and cut on the bias grain, it had a decorative neck feature, the fabric was dyed the color, *sand at sunset*, and this silhouette was fitted at the waist then flared out at the knee. Also, it was one dress and not separates.



Original flat sketches

Modified flat sketches

*Figure 31. Style E111 Flat sketches (Montgomery, 2016).*

The original flat sketches of this one-piece dress (see Figure 31) contained a cowl neck and a full, knee-length skirt. Changes to the garment included modifying the hem length to above the knee and changing the neckline on the front and back of the garment. In addition, the silhouette was modified to be more form-fitted. These changes were necessary so that there were significant differences between each garment in the collection, and to capture the effect of the piña-seda when twisted.



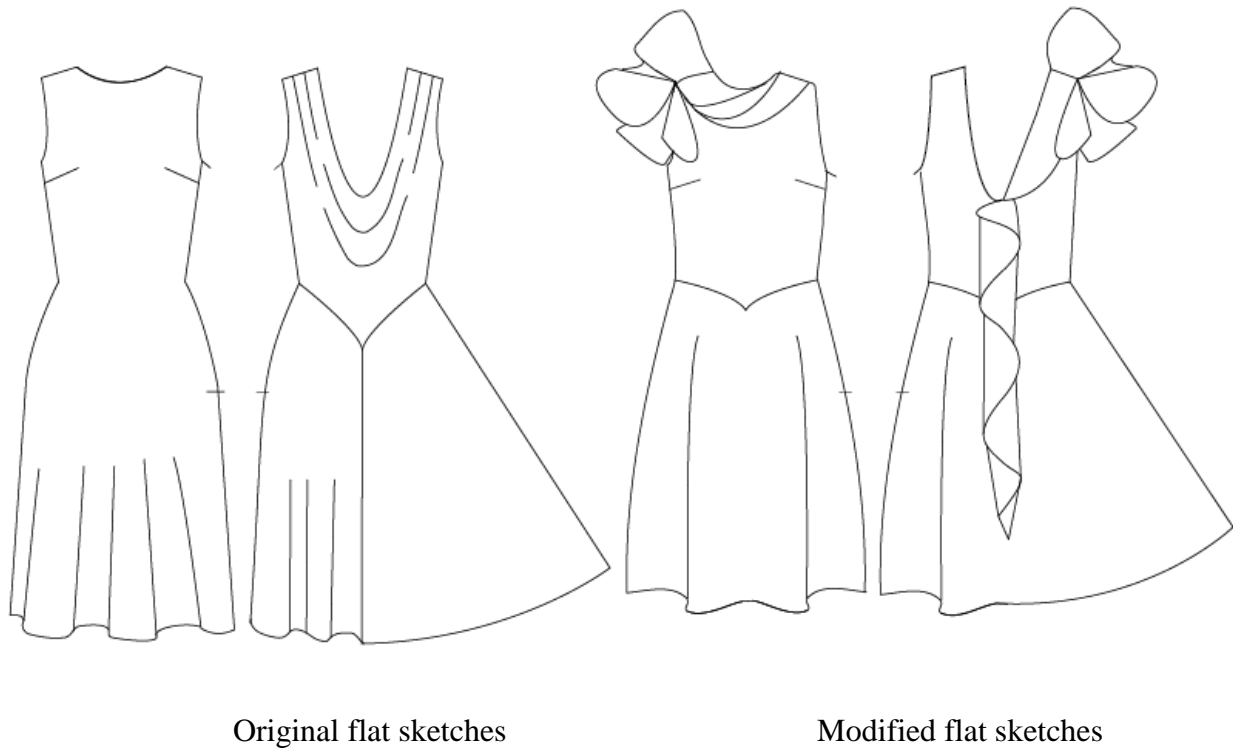
*Figure 32. Style E111 Final garment (Montgomery, 2016).*

## Garment 2: Style E112



*Figure 33. Style E112 Sketch (Montgomery, 2016).*

Style E112 (see Figure 33 and Figure 35) was a loose, slightly above-the-knee, jewel-neck resort dress designed to be worn to a cocktail party or reception. It was made from the dried moss, color-washed piña-seda fabric. The dress featured an asymmetrical, decorative twisted piña-seda neck finish, which billowed on the wearer's right shoulder, twisted and draped across the front and back neckline, then tacked to the center back of the garment. The hem of the skirt was full and moved as the wearer walked. This dress differed from traditional piña-fabric garments because of the decorative neck feature, fabric drape at the front and back neckline, the fabric was dyed the color, *dried moss*, and its fit-and-flare silhouette.



*Figure 34. Style E112 Flat sketches (Montgomery, 2016).*

The original flat sketches of this dress (see Figure 34) revealed a back cowl neck and a knee-length hem. Changes to the garment included shortening the hem length to above the knee, and changing the neckline detail on the front and back of the garment to show the voluminous nature of the piña-seda fabric. Also, the silhouette was modified to fit a little more loosely to provide style variety in the collection. These changes were made so that there were significant differences among each garment in the collection.



*Figure 35. Style E112 Final garment (Montgomery, 2016).*

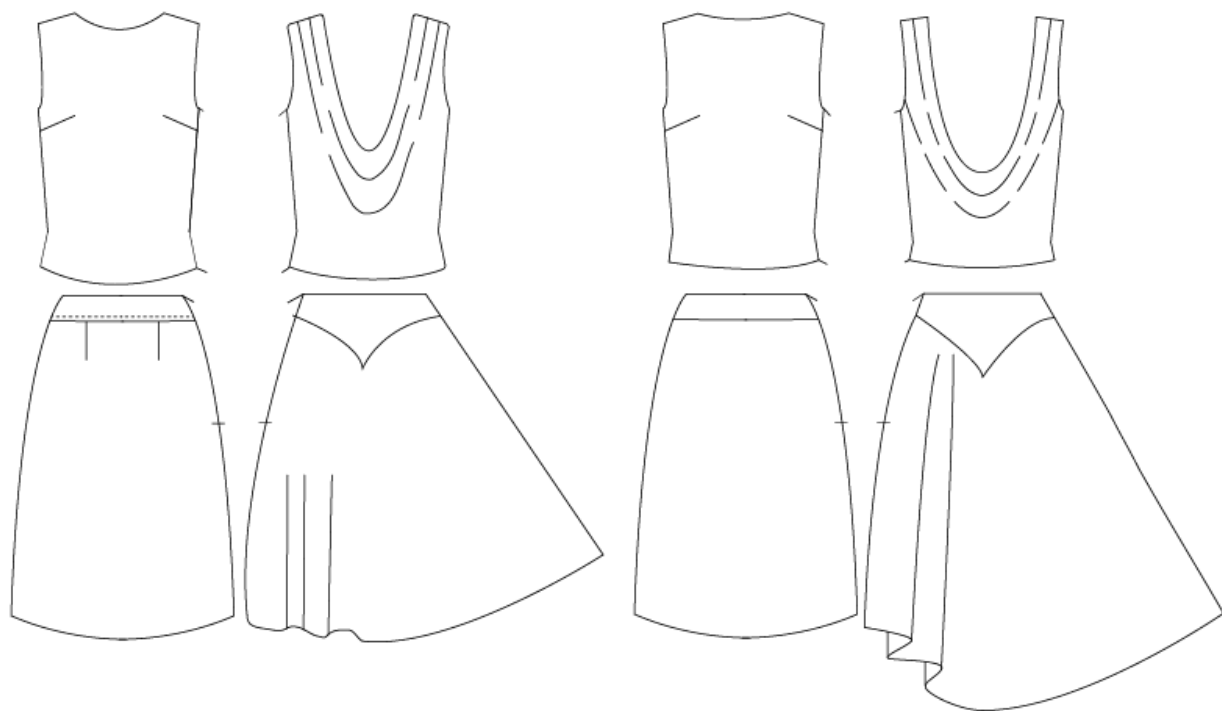
### **Garment 3: *Style E113***



*Figure 36. Style E113 Sketch (Montgomery, 2016).*

Style E113 (see Figure 36 and Figure 38) was a two-piece ensemble that included a bodice and skirt. The loose-fitted sleeveless bodice ends just below the natural waist, skimming the waistband detail on the knee-length pencil skirt. The skirt back featured a yoke and train that highlighted the translucence of the piña-seda fabric. This resort outfit was designed to be worn to lunch or to tea. It was made from the sky blue, color-washed piña-seda fabric. The under skirt had a slit in the back to allow for wearer mobility. This ensemble differed from traditional piña-fabric garments because of the pencil skirt silhouette, flare on the back of the skirt, the fabric was dyed the color, *sky*, and the back cowl on the bodice.





Original flat sketches

Modified flat sketches

*Figure 37. Style E113 Flat sketches (Montgomery, 2016).*

The original sketches of this bodice and skirt (see Figure 37) revealed a back cowl neck, skirt topstitching, darts, a knee-length straight hem, and additional fullness on the back. Changes to the garment included lowering the cowl and center back hemline to highlight the movement and transparency of the piña-seda fabric. Also, the bodice neckline was raised, and the shirt hem was shortened to show more of the yoke on the back skirt.



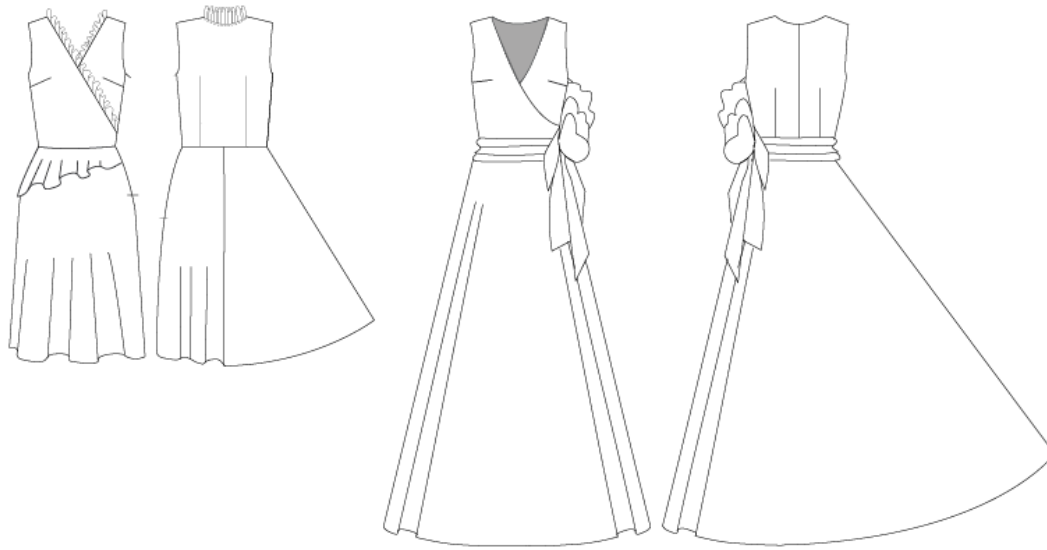
*Figure 38. Style E113 Final garment (Montgomery, 2016).*

#### **Garment 4: Style E114**



*Figure 39. Style E114 Sketch (Montgomery, 2016).*

Style E114 (see Figure 39 and Figure 41) was a sleeveless, faux-wrap gown that featured a fitted bodice and a full, floor-length hem. The belt was draped and tacked to both sides of the zipper. In addition, a large piña bow-like feature was placed on the left side. This gown was designed to be worn to a wedding or formal occasion. The bottom of the skirt was hand painted with multiple colors, and the remainder of the garment was left undyed to highlight the piña-seda's natural color. This ensemble differs from traditional piña-fabric garments because of the floor-length flowing silhouette, belt and bow-like piña-seda feature, and hand painted skirt.



Original flat sketches

Modified flat sketches

*Figure 40. Style E114 Flat sketches (Montgomery, 2016).*

As evident in Figure 40, style E114 underwent the largest redesign process. The original sketches of this garment featured a fitted faux-wrap bodice with a ruffled neckline, asymmetrical peplum, and knee-length hem. The final garment was designed to be the most dramatic piece of the collection. A floor-length hem was added, and the peplum was transformed into a voluminous belt of piña-seda fabric. It was determined the ruffle did not fit the aesthetic of the collection and was omitted.



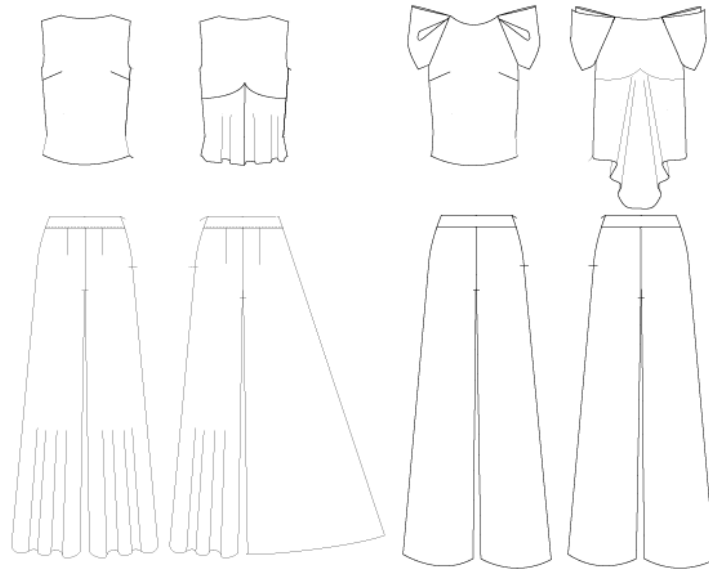
*Figure 41. Style E114 Final garment (Montgomery, 2016).*

### **Garment 5: Style E115**



*Figure 42. Style E115 Sketch (Montgomery, 2016).*

Style E115 (see Figure 42 and Figure 44) was a two-piece ensemble which included a bodice and pant. The loose-fitted bodice had epaulets at the shoulders, and the back had a yoke and train that highlighted the translucence of the piña-seda fabric. The palazzo pants were fitted at the waist and full at the hem. This resort ensemble was designed for an evening event. This ensemble differed from traditional piña-fabric garments because of the fabric drape on the epaulets and back flare on the bodice, the palazzo pant silhouette, and the fabric was dyed the color, *autumn leaf*.



Original flat sketches

Modified flat sketches

*Figure 43. Style E115 Flat sketches (Montgomery, 2016).*

The original flat sketches of this ensemble (see Figure 43) contained a flared pant. While designing the pant, it was discovered that the piña-seda would not drape as the original sketch intended. The pant silhouette was modified to exclude godets. Piña-seda shoulder epaulets were added for visual interest to the top of the bodice and to provide consistency with the rest of the line, so that the volume of the piña-seda was highlighted. The back of the bodice was also dropped and a flare was added, to be more cohesiveness with the aesthetic of the collection.



*Figure 44. Style E115 Final garment (Montgomery, 2016).*



## **Typology of Creativity in Fashion Design Survey Result**

The result of the design thesis was evaluated by an outside design expert who was chosen because of her experience designing for an haute couture designer in Paris. Below were the findings of the expert regarding the Earthenwear collection as a whole as it relates to “leadership design” qualities; see Appendix A for the content of the questionnaire. Questions were placed on a five point Likert Scale and rating options included: strongly agreed, somewhat agreed, neither agreed nor disagreed, somewhat disagreed and strongly disagreed.

The expert strongly agreed that the products reflected exclusivity and rarity, were directional, and that the materials and surface design were complex. The expert somewhat agreed that this collection would appeal to those with sophisticated taste and those who seek high-quality apparel. The expert somewhat agreed that the materials and aesthetic qualities would appeal to the luxury market, that the product embodies creative expression and is innovative. Furthermore, the expert somewhat agreed that the collection reflects a high level of fabric drape and craftsmanship. Also, the expert somewhat agreed that the product inspires a desire for long-term use, and that the product generates motivation to invest as a long-term possession.

The expert somewhat disagreed that this collection would appeal to people who value unique design. Also, the expert somewhat disagreed that the collection reflects a high level of exploration of silhouette or form. The expert neither agreed nor disagreed that the collection reflected the ability to be sold as a one-of-a-kind piece and that inspiration came from a primary, abstract source.

The expert made additional comments after the presentation concluded. The leadership design expert commented that the Earthenwear collection would have benefitted by more

luxurious closures, such as a piña covered button and that garment labeling should have been unique and thoughtful. She commented that these small details make the garments particularly special.

The result of this design thesis was the development and execution of five ensembles using piña-seda (a piña-silk fabric blend), where contemporary surface design and Western styling were used. Hand sketches and flat sketches were used to support and illustrate the finished garments. Garment construction methods and design transformations were documented. An outside design expert evaluated the Earthenwear collection for its leadership design qualities and deemed the collection was appropriate for the Western market.

## CHAPTER V

### CONCLUSIONS AND IMPLICATIONS

The purpose of this research was to demonstrate the potential of piña fabric for fashion apparel in the Western market. Throughout the last four centuries, piña fabric was made and worn in the Philippines. As recently as 2007, piña fabric was found to be at risk for extinction (Hamilton, Milgram, & Fraser-Lu, 2007). Traditional Filipino garments made from piña fabric have remained largely uniform even to present day. For example, piña products have been typically a natural, neutral shade of beige or off-white embroidery. Also, silhouettes that use piña are typically cut in a very traditional manner, a long sleeved tunic for men and a blouse with a wide collar for women. This research spanned the course of five years, involved field experience, and crossed international boundaries.

The result of this design thesis was the development and execution of five ensembles using piña-seda (a piña-silk fabric blend), where contemporary surface design and Western fashion styling were used. The intent of this project was to contribute to raising awareness about the potential of piña fabric, with the hope of helping preserve the piña weaving craft and the production of piña fabrics in the Philippines. The mood of the collection was driven by the aesthetic of nature and effects of time. All garments were designed with one hundred percent

natural fibers. Plain weave piña-seda fabric was utilized instead of pure piña fabric because piña-seda had a softer hand, was more adaptable, and more readily available. The underlinings were one hundred percent silk twill, and the lining was one hundred percent silk habotai. The piña-seda layer was color washed, a free-form painting technique that blended and bled colors into the canvas to create depth and visual interest. This color washing was chosen because the technique created the effects of time. A different silhouette and piña-seda feature were utilized on each ensemble to create a varied yet unified collection. Each style was specifically designed to highlight the uniqueness and volume of the piña-seda fabric, through dramatic collar or waist detail or added back fullness. Additionally, invisible zippers and small hooks-and-eyes were placed into the side seams as to not distract from the overall design aesthetic.

Unification of the collection was derived from aspects including the 1) identical fabrics and findings used on each garment, 2) color washing dyeing technique, 3) a muted color palette, and 4) a piña-seda fabric drape featured on each garment. This study resulted in a collection of five ensembles using piña-seda which was deemed appropriate for the Western fashion market by an industry expert. The combination of the silhouettes, fabric, surface finish, and drape substantiated that piña can be used to create non-traditional garments.

## **Limitations**

### **Piña-Seda Fabric Discovery**

Some limitations when using piña-seda fabric were found during this study. The most significant limitation was the ability to control the irregularity of the fabric. When the fabric was laid to cut, the piña-seda fabric had non-uniform billows which made garments difficult to cut,

sew and fit. This irregularity caused another round of cutting after basting, additional fittings and sewing corrections in the final fabric.

### **Sewing and Handling Piña-Seda Fabric**

The loose weave of the fabric created difficulty when sewing narrow hems on the bias. As a result, the narrow hem often pulled out. When working with piña-seda fabric, the cut weft ends severely unraveled when being washed and dried. I only tested machine washing in the dyeing process; the final garments were not machine washed. It was discovered that using a wide seam is preferable when sewing. When sewing piña-seda fabric, I recommend using a seam allowance larger than 1/8”

There is little academic writing about sewing and finishing piña-seda fabric. During this study, piña-seda was machine washed and machine dried. However, hand washing and line drying the fabric was gentler on the fabric. Piña-seda fabric accepted fiber reactive dyes; however, dark colors were difficult to achieve. Also, fiber reactive dyes can be discharged and overdyed without destroying the fabric. Additionally, the piña-seda accepted iron-pressing on the silk setting very well. I found piña-seda fabric to be more resilient than I anticipated.

In retrospect, to better approach this process for future investigation, a few aspects would be altered. First, a written agreement of fabric quality expectations between myself and the artisans who wove the fabric may have stopped or lessened irregularities in the piña-seda fabric manufacturing process. Second, solicitation of funding for this project should have been more prolific. This would have helped to defray the cost of materials. Third, I should have gotten the

expert involved sooner in the process to help guide the collection. I feel the expert's voice and opinion would have helped shape the collection to have more "leadership design" qualities.

### **Future Study**

Potential areas of future study were broken into two areas: piña fabric related recommendations and market related recommendations. A combination of qualitative and quantitative methods would be appropriate to holistically investigate the potential of piña fabric for fashion apparel in the Western market.

#### **Piña Fabric Related Recommendations**

Supplementary inquiry into the weaving and dying process of piña-seda fabric would help to identify and improve fabric quality problems. Beneficial qualitative investigations might include examining 1) the origin of the fabric distortion, 2) if the warp and/or weft fibers in the piña-seda caused the billowing, and 3) the differences in fabric dye acceptance between piña-seda and pure piña fabric.

#### **Market Related Recommendations**

Understanding the market interest and manufacturing capabilities of piña fabric producers would help to determine the commercial viability of piña fabric for export to the Western world. Beneficial future studies employing both qualitative and quantitative research methods could evaluate 1) how the market perceives this collection, 2) Western consumers' perception of piña fabrics, and 3) the manufacturing capabilities of large-scale piña-fabric production for export.

These studies would help to forecast the likeliness of market success of piña fabric apparel in the Western world.

Five ensembles were created using piña-seda fabric which was transformed by dyeing, draping, and cutting the fabric on the bias, then creating silhouettes including women's dresses, gowns, pants, and separates. This capsule collection for women was targeted at a designer-level Western audience. An outside design expert evaluated the collection for its leadership design qualities and deemed the collection was appropriate for the Western market. The piña fabric surface finish and drape substantiated that piña-seda can be used to create garments that differ from traditional piña fabric garments of the Philippines.

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## APPENDIX A

### Typology Questionnaire for Evaluation

These questions were put on a 5-point Likert Scale

- Source of design inspiration
  - Inspiration comes from primary, abstract sources, not related to the product being designed
- Selling price
  - Materials and techniques appeal to the luxury market
  - Aesthetic qualities appeal to the luxury market
- Consumer taste level
  - Appeals to those with sophisticated taste
- Nature of the product
  - Embodies creative expression
  - Reflects exclusivity and rarity
  - Is innovative
  - Is directional
- Consumer taste level
  - Appeals to those with sophisticated taste
  - Appeals to those who value unique designs
  - Appeals to those who seek high-quality apparel
- Technique
  - Materials and surface manipulation are complex
  - Reflects high level of exploration of fabric drape
  - Reflects high level of exploration of silhouette
  - Reflects high level of exploration of form
  - Reflects high level of quality craftsmanship
  - Reflects the ability to be sold as a one-of-a-kind, unique piece
- Consumer perception and life cycle of product
  - Inspires desire for long-term use
  - Generates motivation to invest as a long-term possession

## APPENDIX B

### Earthenwear Design Thesis Budget

Prototype Fabric	<u>\$340</u>
- Piña scarf	\$40
- Muslin	\$150
- Polyester Organza	\$150
Prototype Materials and Supplies	<u>\$190</u>
- Sample findings	\$20
- Dyes	\$50
- Dye related chemicals	\$20
- Experimental Decorative Supplies	\$100
Final Collection	<u>\$1120</u>
- Fabric	
○ Piña Seda	\$500
▪ Shipping	\$160
○ Silk Twill	\$220
○ Silk Habotai	\$220
○ Interfacing	\$20
- Findings	<u>\$87</u>
○ Zippers	\$30
○ Thread	\$30
○ Hook and Eyes	\$3
○ Hem Tape	\$24
Presentation Supplies	<u>\$355</u>
- Adobe Illustrator and Photoshop Subscription	\$160
- Foam Core Boards (20 x \$3.50)	\$70
- Mounting equipment	\$15
- Printing	\$110
<b>Total Expenses*</b>	<b>\$2092</b>

\*Travel, labor and Fulbright expenses not accounted for

## APPENDIX C

### Institutional Review Board Approval Letter

#### Oklahoma State University Institutional Review Board

Date: Tuesday, September 13, 2016  
IRB Application No HE1655  
Proposal Title: Traditional textile revival: Demonstrating the potential of pina fabric for apparel  
Reviewed and Exempt  
Processed as:

**Status Recommended by Reviewer(s): Approved Protocol Expires: 9/12/2019**

Principal  
Investigator(s):

Marcy Jones Montgomery Mary Ruppert-Stroescu  
431 Human Sciences  
Stillwater, OK 74078 Stillwater, OK 74078

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The IRB application referenced above has been approved. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.

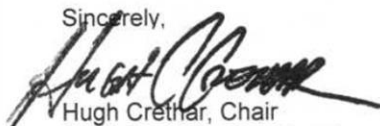
☒ The final versions of any printed recruitment, consent and assent documents bearing the IRB approval stamp are attached to this letter. These are the versions that must be used during the study.

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved. Any modifications to the research protocol must be submitted with the appropriate signatures for IRB approval. Protocol modifications requiring approval may include changes to the title, PI advisor, funding status or sponsor, subject population composition or size, recruitment, inclusion/exclusion criteria, research site, research procedures and consent/assent process or forms
2. Submit a request for continuation if the study extends beyond the approval period. This continuation must receive IRB review and approval before the research can continue.
3. Report any adverse events to the IRB Chair promptly. Adverse events are those which are unanticipated and impact the subjects during the course of the research; and
4. Notify the IRB office in writing when your research project is complete.

Please note that approved protocols are subject to monitoring by the IRB and that the IRB office has the authority to inspect research records associated with this protocol at any time. If you have questions about the IRB procedures or need any assistance from the Board, please contact Dawnett Watkins 219 Scott Hall (phone: 405-744-5700, dawnett.watkins@okstate.edu).

Sincerely,



Hugh Crethar, Chair  
Institutional Review Board

## VITA

Marcy Montgomery

Candidate for the Degree of

Master of Science

Thesis: TRADITIONAL TEXTILE REVIVAL: DEMONSTRATING THE POTENTIAL OF  
PIÑA FABRIC FOR APPAREL

Major Field: Design, Housing, and Merchandising

Biographical:

Education:

Completed the requirements for the Master of Science in Design, Housing, and Merchandising at Oklahoma State University, Stillwater, Oklahoma in May, 2017.

Completed the requirements for the Bachelor of Science in Design, Housing, and Merchandising at Oklahoma State University, Stillwater, Oklahoma in December, 2004.

Experience: ***Fulbright Research Fellow***; United States Department of State, 2015.

Involvement included promoting cross-cultural awareness; documenting intangible cultural heritage of textile artisans via qualitative research methods.

***New Process Product Designer***, Cupid Intimates, 2005 – 2014.

Responsibilities included designing new apparel categories including swimwear, active wear, and men's intimates; designing, researching and developing prototype garments which incorporated new technologies including thermoset, thermoplastic adhesives, and sonic welding technology; consulting on the creation of new R&D sewing equipment; sketching, patternmaking, fitting, and grading all prototype and closeout garments.

Professional Memberships: Member of ITAA – International Textile and Apparel Association