Zero-waste pattern meets technology for marketable & sustainable design

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This practice based research paper explores a meeting between technology and craft through a zero waste collection to be marketed and sold in a bridge market retail store. By creating an end goal of a marketable and reproducible collection the sustainability factor became very important yet also a great challenge. Zero waste patterns naturally challenge the designer as there is required pattern knowledge that is the foundation of the design process. When designing with a zero waste approach the designer needs to be flexible taking into account thinking about construction, grain and pattern shapes to be able to create a successful design (Palomo-Lovinski, Ohrn-McDaniel, Hahn 2012). Historically thinking sustainably was natural although not labeled as such. People cut their fabrics as little as possible and made sure to use as much of the fabric as possible. At that point in time people had a higher value of the cloth and the maker. The further into fashion we get and the current stage of fast fashion the value of the cloth and the maker has almost been diminished. In these original forms of zero waste pattern simple shapes were often used where little or no cutting took place. In current trends of zero-waste patterns Holly McQuillan refers to four categories: tessellation, jigsaw, embedded jigsaw, and multiple cloth approach (McQuillan 2010).

As often when there are new creative approaches to fashion and patternmaking, it is more difficult to create a marketable design that is easily reproduced. The challenge of creating an interesting garment that would be reproducible in a balanced timeframe to fit within an appropriate cost of production for the market is a big challenge. Through this paper such a challenge was tested and explored and the garments were sold in a small bridge market retail store. Through the experience the designer was forced to take on challenges of design, sustainability, production and marketability.

Starting with a zero-waste approach and applying it to marketable design for the bridge market created a box for the designer to work within. Through this collection the pattern design approach was more similar to historical zero-waste patterns, in that they use very simple initial shapes for the foundation of the garment. To contradict those traditional shapes of zero-waste patterns, technology, and cut and sew knit fabrics were used to aid in the discovery of production and design. For technology to be successfully used in production it was important to the designer to utilize technology yet keep the look of a handcrafted garment. This desired look lead to the meeting of laser cutting and knit stiches. The laser cutter was used to cut slashes in jersey that would then be knit to create a look of a handcrafted garment. Due to the history and culture of

the knit stitch a garment naturally takes on the handcrafted feel when larger knit stitches are applied. Therefore such a stitch was chosen as a good detail for the collection. With the incorporation of the laser cutter the exact size of the stitches could be calculated and rather complex patterns could be cut based on an Adobe Illustrator file giving consistency in results through multiple garments. This lead to the opportunity to create complex patterns inside the simple pattern shapes that created both the surface design and the shaping of the garment simultaneously. Once the pattern was cut, putting together the garment was rather simple utilizing a large crochet hook and a serger. In an effort to vary the designs both through surface and silhouette the size and shaping using the stitches varied along with changes in placement and proportions between length and spacing of the slashes. Laser cutting technology is currently used in many beautiful applications in fashion, however one challenge to this technology is that it leaves a raw edge. Depending on the fiber the cut edge will react differently. Since the laser burns the edge of the fabric, natural fibers such as cotton and silk will have a raw edge that easily frays where a manmade fiber such as polyester will have a somewhat cinched edge that holds better. The designer was set on natural fibers, which made this choice more difficult. However after thinking through the options and the season, wool was chosen for its ability to felt the edge after it had been cut. The small collection was sold upon completion in the bridge market retail store. It was introduced to the customers with trunk show were the customers had the opportunity to meet the designer and maker. At this point the garments sold the best which is natural for such an occasion after the trunk show the garments remained in the store and continued to sell.

As a conclusion to the project it was good to see that the designs were valued by the customer and that they were possible to create in a short enough time frame for profitable production. Through this process there was a realization that limitations only help push the creative mind further and in this case forced the designer to think of things that might not otherwise have been discovered. The use of the laser cutter as a tool to create a variety in knit stitches gave the opportunity to a meeting of surface a shape a meeting naturally strengthens the design.

References:

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