



Engaging fashion design students with evolving technology; digital printing

Kim Hahn, Ph.D., Kent State University, USA

Junior level fashion design students were challenged to develop patterns that were to be printed directly onto fabric with a digital textile printer. This project idea was developed for students to learn how to engineer fabric designs on pattern pieces; it also encouraged them to think about sustainable design processes through the use of a digital textile printer.

What used to be complimentary to the screen-print method, digital textile printing is slowly becoming the primary mode of production printing that also uses sustainable manufacturing methods as well as having an improved response to the market (King, 2011). According to Greene (2013) from InfoTrends, the textile market is a huge business, surpassing \$1 trillion in annual revue globally which includes \$165 billion of “printed” textile business. Within in that number, the digital textile printing segment is estimated to be more than \$10 billion worldwide (Greene, 2013).

Digital print technologies are changing the way textiles and apparel are designed, produced and consumed. Therefore, with the growing numbers of digital textile printing productions in the fashion industry, this course project idea was developed to engage fashion design students with this new technology shift that has led to significant changes in the apparel design process. Digital textile printing not only offers the design students with unlimited color, tonal graduations, but also customizable photographic and scanned artwork sources that can be put into a garment design. This aspect makes it possible to add print designs to digitized garment pattern pieces that will also have a single layout plan or marker combined into it for printing. Doing this allows for an efficient use of fabric as well as incorporates accurately measured cutting lines.

This design project was developed in a junior level, advanced pattern development class. First, students develop their design using draping or flat pattern methods and create their paper patterns. Second, they sew a muslin prototype of their garment design to evaluate the fit. Third, students altered their paper patterns based on their fit evaluation of their muslin prototypes. Fourth, students digitized their paper patterns and created their fabric design patterns in Fashion Illustrator. Lastly, students’ digital patterns were printed directly onto fabric; students then sew their garments from the printed fabric that already had cutting lines printed onto each pattern piece.

Some students whom had prior experience manipulating their patterns using a program called OptiTex, decided to develop their patterns with the OptiTex program; then they exported their patterns into Fashion Illustrator to design their fabric.

Through this project, students learned: how to digitize their patterns accurately, how to evaluate the fit of their sample garment to create a successful flat pattern, and how to digitally design a fabric color or print that will fit their garment design through the use of computer software.

With these skills, students were able to create more accurate patterns by eliminating the pattern marking process traditionally done on fabric by hand. Additionally, by developing a muslin sample garment before the digital printing phase, students were able to visualize their designs and explore a number of alternative fabric design ideas before proceeding to the printing stage. Using Fashion Illustrator to directly put colors and customized designs on their patterns in this pre-visualization step gives students the freedom to be innovative with their choice of fabric color and/or design pattern that will suit their garment designs.

Furthermore, by eliminating paper patterns used for the marking process, this course project demonstrated sustainable design principals through the use of digital textile printing. By learning how to digitally develop patterns and design fabrics for their own designs, students truly enjoyed this design project as well as expanded their knowledge of the pattern and fabric design development process.

This project will not only help students to become more viable candidates for the fashion industry by having knowledge of pattern development processes that employ the use of digital textile printing but it also promotes the practice of sustainable design as a critical component for the fashion industry's future.

This design project will continue to be used and developed further; students will be taught how to grade patterns with different sizes using computer software as well as to develop fabric designs accordingly. In the future projects, students will be challenged to develop a variety of fabric and garment designs while experimenting with different types of fabric in order to experience the impact of changing textile print designs or fabric types have on the appearance of their final garment.

Reference:

Greene, T. (2013). Examining the worldwide market for digital textile printing, The Seybold Report: *Analyzing Publishing Technologies*, 13(3), 1-7.

King, K.M. (2011). The digital print transition. *Apparel Magazine*, 52(12), 20-21.