Practical Application of Half-Scale Patterning for Online Digital Textile Design Procedures

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Background and Problem. Half-scale: *pattern drafting*, *muslin mock-ups*, and *garments* have been utilized throughout the history of apparel design for various reasons. From transportable replicas to cost effective sample analysis to patternmaking practice, the half-scale application can be practical, efficient, and valued. New possibilities of how traditional half-scale use can be reinterpreted to suit the needs of the digital user are of interest, especially to those involved in online design studios. As an apparel designer using digital textile printing processes for engineered textile designs, one of the major hurdles is the access to the latest technologies. While digital tools make it easier to create an engineered or placement print that feature continuous designs strategically placed to flow over seams and fit the garment exactly (Bowles & Isaac, 2012) not all designers have digitizing boards, patternmaking software, or digital textile printers consequently more independent designers are using services that provide use of the technology. As a distance design student at a university (which has digital labs) technological use is available online, but there are limitations. Not all university issued software is accessible off campus and not all equipment can be utilized virtually, therefore not all deadlines are possible due to multiple shipping of tangible materials (patterns, swatches, fabric).

Purpose. The purpose of this pilot study was to: (a) flat pattern an ensemble in half scale, (b) mock up the muslin in half scale, and (c) digitize the pattern pieces and engineer the textile print in half scale. Then print the textile and construct the ensemble in full scale to analyze the translation of half scale to full scale and to measure the ease and practicality of the half scale digitizing process. The researcher/designer's previous knowledge of pattern drafting and garment construction were assumed and are integrated into the procedure. This practice based study proposes a model for the online designer to use more common design software to develop an alternative approach to digitizing patterns which will allow for quicker design time and more designer responsibility.

Methods. The design process developed for this study consists of the following 8 steps: (a) creating a proper fitting half-scale sloper, (b) designing and flat patterning an appropriate ensemble, (c) constructing and fitting the half-scale muslin mock up, (d) utilizing three different techniques to digitize patterns and engineer textile prints to place on marker, (e) printing, processing, and cutting textile run, (f) building ensemble and documenting sequence, (g) analyzing fit of finished garments, and (h) assessing ease and practicality of the process. Steps 1-3 provide an overview of the background knowledge needed for the half-scale patterning and steps 5-8 illustrate the use and effectiveness of the three techniques practiced in step 4. Step 4 is the focus of this study and provides the alternative approaches for the proposed model.

Outcomes and Significance. The significance of this study comes from practical low-tech ways to digitize half-scale pattern pieces without industry patternmaking software in order to facilitate online designer capabilities. Once all half-scale pattern pieces have been altered, trued, and, labeled they are now ready for digitizing. This step is usually done with full-scale patterns, a digitizing board, and apparel industry specific software. For the distance designer/student this means having to mail your paper patterns to the lab to have them digitized by a trained user of the system. Once the pattern pieces are digitized, the digital files are virtually sent to the distance designer/student.

This study suggests there are other ways to manage this step and the experiments within this study provide documentation for three different processes. All processes use the tangible half-scale paper patterns, a digital scanner, and the adobe software programs Photoshop and Illustrator. The three processes differ in the sequence of using the patterns, scanner, and software but all result in illustrator files ready to be placed on the textile marker. Figure 1 shows the general sequence of steps for the three unique processes.

Half-Scale Digital Textile Printing Models for Engineered Prints		
Process I	Process II	Process III
1. Cut half-scale pattern pieces in fashion fabric	1. Cut out imagery from magazines, etc.	1. Scan half-scale patterns into Photoshop
2. Embellish with stitching and trim	2. Collage magazine images on half-scale patterns	2. Upload using Illustrator from Photoshop
3. Scan into Photoshop	3. Scan into Photoshop	3. Trace digitally
4. Upload	4. Upload	4. Design digital print
5. Place on marker	5. Place on marker	5. Place on marker

Figure 1. Tested sequence of steps for half-scale pattern making for digital textile printing

Conclusions and Implications for Future Studies. As a result of this study a series of online student tutorials for the half-scale digital textile printing models were created with the potential for course use and case study research. Areas of future study include assessing varied designs to further evaluate the effective translation of half scale to full scale, exploring alternative practices of applying (digitally and hand) textile design, and investigating methods for scaling existing full-scale pattern pieces to half-scale pattern pieces.

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