Designing and creating a self-help, bifurcated childrenswear ensemble using experimental patternmaking and digital technologies

April Elisha Stanley and Ellen McKinney, Iowa State University, USA

Keywords: Experimental patternmaking, self-help garments, digital printing, childrenswear

Significance of the scholarship. The researchers have previously developed childrenswear designs that permit multi-sizing and adjustability (Stanley & McKinney, 2016). However, there is a gap in the market for childrenswear garments that merge multi-sizing and experimental patternmaking in self-help apparel. The pattern development for this ensemble was derived during the practice of experimental patternmaking methods. Julian Roberts' (2013) subtraction cutting method was the manner of experimental patternmaking chosen for this project. A gap in the market was also discovered for childrenswear inspired by the Celtic selkie myth. This technical design process sought to answer the following questions:

1. Is subtraction cutting a sustainable method for developing childrenswear garments: accommodating multi-sizing for longer wear time, reducing fabric waste and consumption?
2. Can the subtraction cutting method be used to successfully create self-help childrenswear garments, allowing a child to dress her/himself?
3. How does the subtraction cutting method work in conjunction with digital printing?
4. Can subtraction cutting pattern development be incorporated successfully with the Celtic selkie legend as a design inspiration?
5. Does the subtraction cutting method allow for the use of construction methods that would increase the durability and quality of an ensemble?

Background literature. For subtraction cutting, the end result of the final garment is created by the removal of fabric (Roberts, 2013). Roberts (2013) subtraction cutting method requires shapes to be cut from fabric. Self-help childrenswear garments "encourage initiative and self-reliance in dressing in early childhood" (Banerjee, 1964, p. 9). Banerjee (1964) found self-help childrenswear garments should open in the front for ease of dressing. Researchers suggest the use of zippers and elastic because these attributes allow a child to dress her/himself (Banerjee, 1964; Brown & Rice, 2014). The use of technology can be combined with experimental patternmaking methods (Rissanen and McQuillan, 2016). Digital textile printing was used in conjunction with experimental patternmaking techniques to design and create self-help childrenswear apparel.

Design process. The method of research through practice was used to approach the design process (Bye, 2010). The aim of this project resulted from the practice of subtraction cutting methods. Questions arose for designing self-help childrenswear garments that could successfully combine multi-sizing, sustainable components, digital printing, and the selkie myth. Existing literature and the apparel market were examined as a contextual review. For practice and reflection of the project, multiple sketches were completed, quarter and half-scale prototypes were produced to determine successful pattern development, and construction samples were made to examine the most appropriate assembly and finishing methods. A critical analysis of the process was written as an evaluation of the apparel design process. The end result of the research and practice was a self-help childrenswear ensemble.

The culottes pattern was developed using Roberts' (2013) subtraction cutting method of accordion folding. The pattern was drafted as a size 5X to accommodate sizes 4 – 5X. The shape of the legs were drafted to incorporate an elongated shape to simulate the selkie body. Then the legs were folded accordion-style to determine placement of the cutout circles, which were large enough to accommodate the circumference of the legs, accounting for growth and seam allowances. Separate hem extensions were drafted to emulate a fin-shape to be sewn at the back of the legs. An elastic casing was created at the waist for ease of donning and doffing the garment. A lining was drafted to fit through the subtraction cut circles, eliminating confusion in the dressing process. A coordinating, sleeveless blouse pattern was drafted using Roberts' (2013) accordion-style, subtraction cutting technique. The volume of the blouse design competed with the culottes and also overwhelmed the dress form. A streamlined blouse pattern was developed instead. This new blouse pattern retained the center front zipper opening and the selkie hem extension but added fin-shaped, side godets. A full lining was drafted for the blouse.

Original digital prints were created for linen fabric. The construction methods used for both garments included topstitching and roll hemmed edgings. The culottes also had zigzag stitches around each circular cutout for reinforcement.

Results and implications. Through the practice of experimental patternmaking for the culottes and the blouse, it was discovered that subtraction cutting does not always translate proportionally for childrenswear garments. This resulted in the tacking of the culotte legs to control the volume and length of fabric and a new version of the blouse being drafted. However, this project confirmed subtraction cutting is successful for bifurcated garments. The sustainable element of multi-sizing for longer wear was successfully incorporated. However, subtraction cutting in this case did not impact fabric waste any more or less than traditional patternmaking methods but increased fabric consumption, which elevated the expense of the garments. The amount of time and labor did not differ much from past projects. Self-help childrenswear was created with a zip-front opening for the blouse and the elasticized waist in the culottes. With the use of pattern drafting, the Celtic selkie legend was effectively incorporated into the pattern designs. Digital printing provided further originality to the garment designs. The construction methods successfully contributed to the durability and quality of the garments.

References

Banerjee, D. (1964). *Designing and construction of 'self-help' garments for the pre-school children of Baroda* (Unpublished doctoral dissertation). Maharaja Sayajirao University, Baroda, India.

Brown, P., & Rice, J. (2014). *Ready-to-wear apparel analysis, 4th ed.* Upper Saddle River, NJ: Pearson Education, Inc.

Bye, E. (2010). A direction for clothing and textile design research. *Clothing and Textiles Research Journal, 28*(3), 205 – 217.

Rissanen, T., & McQuillan, H. (2016). *Zero waste fashion design.* London, UK/New York, NY: Bloomsbury.

Roberts, J. (2013). *Free cutting.* Retrieved from http://www.julianand.com/

Stanley, A. E., & McKinney, E. (2016). Wee Bonnie Garden: Design Strategies for a Multi-Generational Christening Gown. *Proceedings of the ITAA Annual Conference,* Vancouver, Canada. (presentation)