

Exploration of Body-to-Pattern Shape and Measurement Relationships for Women's Trouser Patterns found in USA and UK Pattern Drafting Methods: Implications for Garment Fit

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Block patterns should accurately reflect the measurements and shape of the individual human form used in their origination to achieve well fitted garments, however, pattern drafting often uses only limited surface measurements and therefore may not be suitably developed to reflect individual forms.

The relationship of body measurement to pattern measurement, known as ease, as well as the measurement of body shape to pattern shape have a major impact on garment fit (Adriana Petrova & Susan P Ashdown, 2008). Ease amounts vary from method to method and have been compared for upper body garments (Gill, 2011; Gill & Chadwick, 2009). Researchers (McKinney, 2012; A. Petrova & S. P. Ashdown, 2008; Schofield, Ashdown, Hethorn, LaBat, & Salusso, 2006) have studied ease amounts and body shapes that provide good fit for women's pants; however, these factors have not been compared among drafting methods. Investigation of the body-to-pattern measurement and shape relationships created by pattern drafting methods may yield insight not only into what the relationships are, but also, how well they accommodate bodies with different shapes. This understanding may lead to improvement of pattern drafting methods.

Two methods of block drafting (Aldrich, 2008; Joseph-Armstrong, 2010) were selected for investigation of the resultant measurement relationships (ease) and shape relationships between the leg form and drafted trouser patterns. The research framework was similar to that used by McKinney, Bye, and LaBat (2012), with measurements compared at waist, hip, and crotch length and crotch shapes compared (Figure 1). Six full forms from different

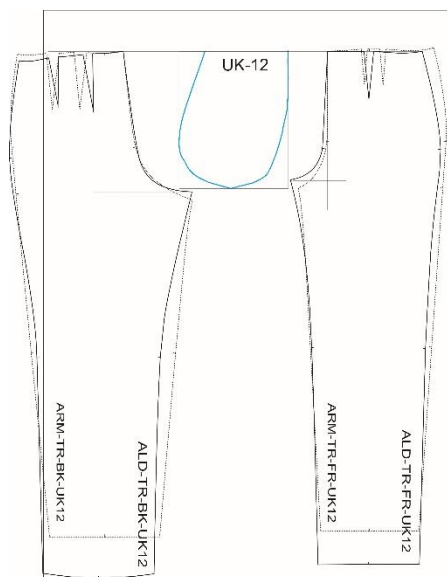


Figure 1 Example of comparisons of body and pattern shapes at crotch curve

manufacturers, representing different shapes, but with waist and hip measurements within the same size categories were selected, as one of the major goals was to investigate body-to-pattern shape relationships. Forms were measured (Beazley, 1997), two patterns were drafted for each leg form, and these were digitized. The forms were scanned and body shapes extracted. The body-to-pattern relationships found were also compared between the two methods, following the frameworks used by Gill and Chadwick (2009) and Gill (2011). After quantitatively calculating the ease amounts, we qualitatively reviewed the drafted patterns, considering the impact of each drafting step on the final patterns achieved.

Results showed that ease amounts were different between the patterns, even those drafted by the same methods showed different ease dependent on the form. This

process illuminated the inconsistencies in current pattern drafting methods in controlling and predicting ease, which has a direct bearing on pattern shape. Our qualitative analysis pointed to some of the trueing, blending, and connecting steps in the pattern drafting process as the cause of these inconsistencies. The two studied pattern drafting methods would benefit from the addition of a step in their written process when the drafter checks measurements of key locations (e.g. waist, hip, and crotch length) and trues them to the body measurement plus the desired ease amount.

Results also indicated that pattern crotch shapes of the drafted patterns were similar within each method, despite the fact that the crotch shapes of the forms were different (Figure 2). It seems that neither of the tested methods provide variation to truly reflect the different shape of each form, particularly in regard to the front-to-back body depth. The drafting process could be improved to better accommodate different body shapes through the use of measurements that are available through 3D body scanning. For example, front-to-back body depth measurement could be used to draft crotch extensions appropriate for individual body shapes. Finally, analysis also determined that patterns drafted to the same form could be strikingly different in shape and measurement depending on the method used. This finding has impacts for companies that do business in multiple countries if different methods are used to draft basic block patterns.

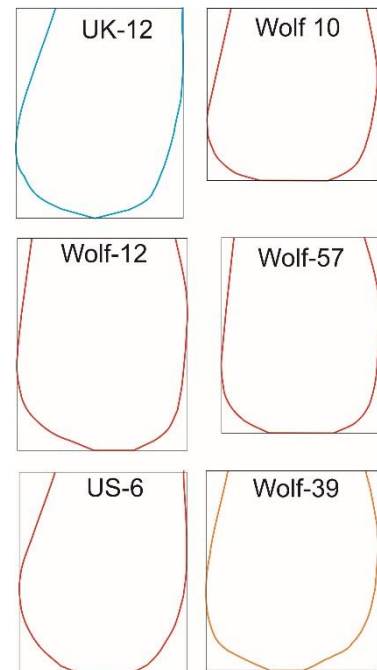


Figure 2 Visual comparison of shapes

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