Human Body Form: What Does It Mean?

Frederick S. Cottle, Kansas State University, USA
Pamela V. Ulrich, and Karla P. Simmons, Auburn University, USA

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Research in the field of somatology related to the fit of apparel has focused on the current apparel manufacturing process flow. In the current system, three dimensional (3D) body form is converted to one dimensional (1D) sizes and two dimensional (2D) shapes in order to utilize shaping methodology in the conversion of 2D fabrics into a 3D garment that fit the 3D human body form. This treatise intends to clarify definitions of and bring deeper meaning to the somatological constructs of size, build, shape, and form. It is built on research methodology know as logical argumentation. Logical argumentation is defined as a systematically rational method to make sense of some aspect of the cosmos (Groat & Wang, 2002). The construct clarity and meaning that are developed can be used to conceptualize a framework of understanding. This framework can then be used as a lens to view apparel product development and manufacturing as they relate to the fit of garments to the human body.

The size of an object is defined as its physical magnitude, extent, or bulk; relative or proportionate dimensions of an object (Webster's, 1993). Examples of size are length, height, weight, or girth. Body size is the 1D measurement of component body parts. Build is defined as the mode of structure: the bodily conformation of a person (Webster's, 1993). Examples of describing body build with linear data include waist-to-hip ratio, thigh-to-calf ratio, and shoulder, waist and hip proportions. Shape is defined as the visible makeup characteristic of a particular item (Webster's, 1993). Shape is the external surface or outline that an object is perceived as occupying. Examples of shape include triangle, rectangle, pear, apple, and hourglass. Within the creative sciences (art and design), shape is considered to be a 2D construct (Fiore, 2010). Although size, build, and shape are vital constructs in the fit of apparel, body form could be considered the quintessential construct to measure, as it best represents all attributes of the actual human body. Form is defined as the structure of something: a human body as distinguished by external appearance (Webster's, 1993). Body form can be defined as the volume that an object occupies in 3D space. Form is considered to be a 3D construct in the creative sciences (Fiore, 2010).

Professionals in the apparel industry can easily visualize how size, build, and shape relate to fit. However, it seems difficult to envision the construct of form related to fit beyond making adjustments to an existing garment on a dress form or fit model. The reason for this is the lack of an accepted operational definition of form. Current apparel processing flow reflects this

paradigm and could be termed the 3D-to-1D-to-2D-to-3D structure. The current system contains three instances of dimensional data conversion with each instance resulting in the loss of data value (Bye, LaBat, & DeLong, 2006). The value loss associated with the several conversions has the potential to contribute to apparel fit problems that seem to be prevalent in the marketplace today. Should size, build, and shape research intending to make the 2D flat pattern process more efficient remain the focus? While it is important to make processes more efficient, a time arrives when technology is available that potentially allows for a paradigm shift toward more effective process.

Three dimensional body scanning technology has existed for over ten years and can easily measure human body form. However, what does this measurement mean in relation to the fit of apparel? A procedural step in a recent study was to gain an understanding of the point cloud data structure representing the form construct (Cottle, 2012). While understanding the data structure is foundational to developing a definition, the study stopped short of operationally defining form as this was outside the scope of the study.

In order to frame a logical system that brings clarity, consistency, and possibly new direction to a field of study, sometimes seemingly disparate components must be viewed holistically (Groat & Wang, 2002). This oral presentation will cover definitions of size, build, shape, and form. These unique constructs will be viewed in gestalt via a graphical representation of the current industry processing paradigm. We will move beyond the current model by discussing a conceptual process flow that will include an operational definition of form. The main intent is to start a dialog that could lead to a paradigmatic shift in the industry resulting in a more effective apparel process flow and better fitting apparel.

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