## A Better Dress: Ideal Illusion

Jessica L. Ridgway, Ph.D. Florida State University

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**Contextual Review and Concept:** Research has demonstrated that women are willing to go to extremes to manage their appearance by participating in behaviors such as "dieting, exercising, cosmetic use, surgical procedures, and apparel selection" (Rudd & Lennon, 2000, p. 152). The task of apparel selection is thought to be a viable way to change one's physical appearance. According to research conducted by Fan, Yu, and Hunter (2004), there are very few women that think they have a perfect body, but in most cultures many women believe that they can improve their appearance through the use of clothing. In the field of textile and apparel management, researchers have investigated the relationship between apparel fit, body shape, and body dissatisfaction (Ridgway, 2017, 2018; Alexander et al., 2005; LaBat & Delong, 1990; Song & Ashdown, 2013). Until recently, researchers have neglected to evaluate how the design elements of a garment can affect the wearer's perception of their body. Recent research conducted by Ridgway (2017, 2018) evaluated how the use of optical illusions in dress were historically prescribed to women and how optical illusions can affect the wearer's perception of their body. The Author (2017) had previously designed optical illusion garments using 3D draping and digital avatars. Therefore, the purpose of this current design scholarship is to build upon this line of past research by creating custom physical garments for each participant. The following research questions were explored: Can an optical illusion garment increase a wearer's body satisfaction? What design elements can be utilized to manipulate the wearer's perception of their own body? And how does the inclusion of the wearer in the design process effect the overall level of achievable body satisfaction? To answer these questions, the researcher conducted a case study that utilized in-depths interviews and a user centered design approach. This work also builds upon current research in the textile and apparel field that examines the inclusion of users in the design process (Morris & Ashdown, 2018; Morris, Park, & Sarkar, 2017).

**Process and Technique:** *A Better Dress: Ideal Illusion,* was the result of one woman's participation in the larger research project. The research project consisted of three stages. In the first stage, the participant came to the research laboratory, was body scanned, and participated in a brief semi-structured interview. In stage two, the participant returned to the lab to view her (participant's pronoun preference) avatar. The researcher recorded her responses and reactions to viewing her body in 3D. Also, the participant was asked to bring in five pieces of clothing from her own closet that she considered to be her favorite garments. An interview was conducted to access reasoning for why these garments were her favorite. The researcher used this information to inform the style, fit, and overall aesthetics of the custom garment that would be created for this participant. Stage three was

the collaborative design process to make a physical garment for the participant with the intention of revealing the participant's favorite parts of her body and concealing areas of her body that she considered less favorable. To start the design process, the researcher presented five initial sketches which were digitally sketched onto the participants 2D avatar from the body scanner. The participant identified the designs that she wanted to move forward with and gave feedback to the researcher on the adjustments she would like to make for the garments to be more aesthetically pleasing. The Adobe Illustrator plugin for Optitex was then used to create a 3D rendering of the garments. Using the 3DDI plugin allowed for the user centered design approach to be more seamless. As design decisions were discussed, the researcher could quickly make the edits and the participant could view the edits instantly on a 3D version of the dress (view video here). When the final version of the participant's custom optical illusion garment was created, the garment was then digitally printed on a single knit cotton fabric using a Mutoh digital textile printer. The participant selected the knit to achieve a close and comfortable fit. Once the garment was sewn, a fit session occurred. A total of three prototypes were created to obtain the exact fit and print placement on the body. Since this was an engineered print, it was very important to the success of the illusion that the lines of the print were in the correct place on the body.

Based on the interview data, it was determined that the participant wanted to reveal her collar bone, legs, and waist while concealing her "large" chest and underarms. *A Better Dress: Ideal Illusion* was created to meet these needs. The dress silhouette was a simple shift dress based on the preferences of the participant. The dress contained a series of lines and gradients to conceal and reveal areas of the body. For example, the dress featured gradient shading of the underarm with a white section on the top of the arm. This division of the arm reduced the overall visual size of the arm according to the participant. She stated, *"So with the arms we have the darker on the outside and white on the inside which makes my arms look thinner. It makes me feel like I have a more of a define shape on the arms."*

Additionally, lines were used to create the illusion of a narrow waist and draw the viewers' eye to the waistline of the participant. These lines extend from the neckline down to the hem of the garment furthering the illusion of a leaner body shape. Furthermore, the dress features a boat neckline to reveal the collarbones of the participant, which were one of her favorite features of her body. The participant was very self-conscience of her bust size. A large, thick black stripe was placed down the center of the garment to conceal the bust, but also to visually divide the space of the body that the bust formed. The participant was particularly satisfied with the inclusion of this design detail and even felt that it made her look smaller overall. She commented, *"It makes me feel smaller... If it were a skinnier bar, I think it would have made me look wider. But because the bar takes up most of the front, the pattern makes me feel much smaller. Which is you know, is what I was looking for."*

During an interview, the participant revealed that her ideal body shape was hourglass. Thus, design elements were incorporated to further accentuate her ideal shape such as gradient shading on the hips and through the waist. The results of the final interview revealed that the participant had increased body satisfaction while wearing her custom optical illusion garment.

**Design Contribution and Innovation:** This design scholarship contributes to the body of knowledge by building upon past research in the area of optical illusion design (Ridgway, 2017, 2018; Jiang, 2020). The physical garment provides an object that, with the written work, can help to further disseminate knowledge of how clothing can be used to increase body satisfaction. This work provides evidence for further research to explore how design elements can be used to manipulate the way body shape and body size is perceived. Although the findings cannot be generalized, retailers and other designers can consider the types of optical manipulations that occurred within this design. Perhaps in-depth studies of target markets would reveal common idealizations. This information could then be used to create products that would aid the wearers in achieving the visual effect of a more ideal body. This may also be beneficial to the overall well-being of women who could purchase more ideal clothing resulting in less of a need to manage one's appearance through extremes like surgery and fasting. Finally, future research should investigate groups with the same body shape classification to determine if there are any common dissatisfactions that could be alleviated using optical illusions in clothing.

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Video link: https://youtu.be/B5gboZuDUuE