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Cross-college collaboration: Communication opportunities with 2-D and 3-D technology

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Keywords: social media, communication, product development and co-design

Justification: Recent research in global communication and CAD technologies indicates the need for improved communication through the development and use of CAD applications, namely within global supply chain management strategies (Easters, 2012). Additionally, direct communications and an individual's abilities and skills contribute to the efficiency and success of the product lifecycle (Chen, Murray, & Jones, 2007). Critical areas for professional student preparation in the apparel and textile industries include oral and written communication, critical thinking and problem solving, decision making, marketing, and cooperative skills (Hyman & Hu, 2005). Therefore, this project investigates 2-D and 3-D design technological applications using social media as the communication between apparel design students in two geographic regions.

A globalized apparel supply chain is dependent on communication across geographic regions and often without direct contact. To simulate this environment within an educational setting, an authentic learning strategy provided the framework for the project design. Emphasizing the importance of collaboration and engagement, without direct communication, the cross-institution design challenge provides a real-world experience, increases active student participation, and highlights the importance of visual and technical communication between designers and manufacturers.

Project Design: Apparel design students enrolled in an introductory fashion illustration course and an introductory patternmaking course engaged in a cross-institution design challenge over an eight week product development cycle. Illustration students (designers) from a northeastern college designed and developed technical flats for female tops, jackets, or skirts produced in woven fabrics based on a Pinterest© inspiration board created by a young female urban professional as the target customer. Adobe Illustrator© was used to create the technical flats and design sheets as PDF files. Completed design sheets with color front and back views, fabric choice, and price points were uploaded to the customer's Pinterest© board. From the social media site, the young female urban professional selected designs based on her style and evaluated the designs by providing feedback via comments to the illustration students. Based on the feedback, 12 revised design sheets were uploaded to a Dropbox© folder for access by an instructor at a southeastern university.

As a group, designs were analyzed and critiqued, based on technical qualities, feedback on the Pinterest© board, and stylistic preferences of patternmaking students (manufacturers) from the southeastern university. From this discussion, a manufacturer selected a design. No prior communication between the groups or identifying factors was associated with the design sheets. As the manufacturer, responsibilities include creating a first draft pattern, industrializing and finishing the pattern and creating a "sample" of the garment for designer analysis. Manufacturers had three weeks to complete a first sample. Using Lectra Modaris V7R patternmaking and 3-D simulation software, manufacturers created a virtual first sample for

design and fit analysis via video conference. Manufacturers did not communicate with designers nor did respective instructors have any contact for the duration of the project. All technical and/or design analysis decisions were made by the manufacturers without designer input. A neither technical croquis nor specification sheet was provided with the design sheet to emphasize the importance and constant need of communication tools.

Outcomes: Communication between designers and manufacturers is essential for efficient product development lifecycles. Prior research on global communication and CAD/CAM technologies was inconclusive on the use of 2-D and 3-D simulation software by designers and manufacturers, with many executives indicating positive use by marketers and consumers (Easters, 2012). Additionally these systems, while imperfect, may not be sufficient as sole communication resources for designers and manufacturers. Based on initial feedback from the customer and designers, participants had challenges articulating the visualization of the 2-D technical flat when pressed with the reality of it being constructed in 3-D form.

Students identified as manufacturers reported communication difficulties from the initial analysis. Questions arose about garment length, closure placement, opening widths, seam locations, total pattern pieces, etc. Technical analysis required manufacturers to determine a skirts length based on personal interpretation and ratios derived from the technical flats. Manufacturers developed patterns, which following measurement and industrialization procedures, often required additional pattern adaptations. From the pattern variants developed in Modaris V7R©, patterns were virtually “stitched together” and stitch errors checked using the software. Once complete, a 3-D simulation of the garment was created on a size 8 mannequin. Fit and ease issues are checked and corrected prior to finalizing the fabric choice and color for a complete first sample. Front, back, and side first sample images were saved and uploaded to the Dropbox© file for analysis and feedback via a video conference between student groups.

Outcomes and student feedback indicates, while technological advances have drastically reduced product lifecycle timetables and increased communication capabilities, some direct communication remains vital between designers and manufacturers. Programs such as Lectra Modaris V7R© software and social media/communication platforms such as Pinterest© provide designers, potential customers, and manufacturers the opportunities to engage in product development while located in various geographic locations. While this exercise may be commonplace in the global apparel industry, its occurrence in an educational setting is less prominent. Through an authentic learning strategy, students participated in a real-world design exercise complete with communication challenges, collaboration, and active student engagement.

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