Interdisciplinary Teaching Strategy: Creating Digital/Virtual Student Project Showcases

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Successful textile and apparel retail businesses require extensive collaborations with various experts. Textile and apparel product designers work closely with artists to create new, fresh, relevant designs. Apparel product developers are engineers who work closely with latest technology that would help product engineering processes effectively and efficiently. Apparel marketers and merchandisers cannot work alone without knowing how the finished products should be displayed in a specific retail environment. Throughout these collaborations, technology is a key to combine all expertise together and communicate each other in a cohesive way. Therefore, being able to utilize various technologies throughout this process and work with various experts is one of the critical success factors for today's retail employees.

The departments of Textile and Apparel Management (TAM), Architectural Studies (Arch St), and Art at the University of Missouri composed a "Digital/Virtual student project showcase team." The goal of this team was to create students' unique interdisciplinary learning experiences and to showcase their outcomes digitally and virtually by incorporating 3D technologies available from three departments. To achieve this goal, we had three objectives: (a) to establish teaching and learning tools for digital/virtual student project showcase using cutting-edge innovative technology; (b) to teach students how to use essential tools, such as 3D virtual design and presentation techniques in 3D virtual environment; (c) to pilot as many as 5 student projects that highlight interdisciplinary collaborations among TAM, Arch ST, and Art in a digital/virtual student showcase.

Specifically, the process of this project was as follows:

- First, garments were developed in 2D/3D software, and the digital textile prints created by Art and TAM students can be imported into 3D virtual garments.
- Second, the digital dress forms/fit models was scanned from the 3D body scanner in TAM, and the digital models were used in the Optitex 3D patternmaking digital software.
- Third, the virtual garments made through the Optitex were then shown in 3D digital models.
- Fourth, the 3D digital models were then be presented into the 3D virtual reality environments in the created by students in Arch St. The environments were done in Autodesk Maya and materials and lighting was done in Autodesk 3D Studio Max.

- Fifth, apparel marketing and merchandising students created effective marketing and merchandising strategies for apparel products created by apparel product development students.
- Finally, the finished products, including textile designs, apparel designs, retail environments, marketing campaigns, and merchandising strategies, were showcased in the 3D virtual reality screens.

Figure 1. Example of showcase

Faculty from the departments of Textile and Apparel Management (apparel design and marketing), Architectural Studies (retail format design), and Art (textile design) worked closely together and initiated a pilot project to establish teaching/learning tools for digital/virtual student project showcase. Figure 1 shows one of the first examples that we pulled all together as a pathway to connect all components in one virtual environment. This strategy gave TAM, Art, and Arch St students a unique, one-of-a-kind experience with 3D technology through interdisciplinary collaborations. The students learned not only cutting-edge technologies, but also the importance of collaborations throughout the industry segments. Both of these learning outcomes seemed to be the keys to success in today's retail industry. Particularly, both faculty and students learned to appreciate the importance of each collaborator and academic disciplines' inputs to achieve one common goal. Thus, this project allows us to better prepare our students for today's retail environment by replicating this work collaboration as an intensive and innovative learning project that will showcase our students' work effectively with potential employers. Currently, we are now at the stage of launching a larger scale student work showcases. We will be able to share the results of the larger scale product in near future.