



## Curriculum Development Using Virtual Reality In An Experimental Apparel Design Classroom

Sandra Starkey, University of NE-Lincoln

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**Introduction.** Virtual reality (VR) technology is an interactive experience that directly encourages innovative exploration (Lau & Lee) and it specifically has the potential to impact the creative process for apparel design students. Fashion designers commonly draw inspiration from and develop conceptual themes inspired from novel experiences, travel and cultural interactions (Keiser, Vandemar & Garner). VR technology can provide exposure to, and simulate, opportunities that students may not be able to experience first-hand. VR has proven to be a helpful learning tool in a variety of classroom settings (Mikropoulos & Natisis). It has also been used for prototyping, simulation experiences and for collaborative design projects in industry, however, little research has been done about the use of VR in the apparel design classroom. While VR had a short boom in the 1990s as a novelty entertainment, its success required technology that has only recently become more readily available (BBC Focus Magazine). Virtual runway shows and other fashion related resources are starting to hit the marketplace with more frequency and are more affordable (Jiang; Jones, Hah & Shekhtman). Our students (post-millennials), are constantly connected to technology and they interact socially using platforms such as snapchat, instagram, pinterest, twitter, YouTube and more (Smith & Anderson). Introducing VR technology into the apparel design classroom makes sense for these students. As educators, it is vital to stay up to date about how to best use technologies, and to evaluate their usefulness from a student perspective for future course planning.

**Purpose and Objectives.** The purpose of this project was to provide both undergraduate and graduate students access to VR technology as part of an experimental apparel design process. In addition, it was an objective to include graduate students taking the course in a research process that evaluated the use and acceptance of the VR technology. A primary goal was to better understand how students perceived the usefulness of VR and specifically as a source of inspiration for garment development. This information could be beneficial for future course planning and adds to the body of research using technology in the apparel design classroom.

**Implementation of the Strategy.** Acquiring the technology was made possible by funding that was obtained from a college innovative technology project grant. Samsung Gear VR headsets, Samsung Galaxy S7 phones, and two tablets were purchased with the funds. Curriculum was

developed based in part on research about VR technology in the classroom (Hanson & Shelton). The instructor experimented with the headsets and searched for apps that could provide inspiration for the students. The goal was for students to easily and quickly immerse themselves in the technology. Apps that were downloaded to the phones included travel related themes, art galleries, abstract geometric environments, architectural wonders and other thrillers and fashion sites. The content was interactive and included sensations of moving through 3-D space, however, the project did not include apps that facilitated gaming or that allowed students to participate in the act of designing as a part of a virtual environment. Students worked in pairs to assist one another during the process as well as for safety reasons. Students explored VR during two studio class periods and had the opportunity explore content of their own choosing. The VR experiences were carefully documented by the students as a part of the garment ideation process including journal reflections during the entire project. Finally, students sketched garment designs based on VR inspiration and completed the apparel design process that included actual garment construction and then eventual presentation of the garments at a public fashion event.

**Current And Future Curriculum Evaluation Plan.** Graduate students assisted the instructor in developing an IRB approved study to help gain a better understanding of students' perceptions about the use of VR in the classroom. The instructor as observer, fully documented the entire process with photography and notes. Qualitative questionnaires were administered to students before and after the VR project. Students' design journals and reflections were also a part of the study data that is currently being analyzed and will be a part of a larger study.

**Description of Effectiveness and Plans for Continuation.** The following statements are the result of a preliminary review of twelve pre and post questionnaires that students filled out. All but one student mentioned that the VR project provided interactive 3-D inspirations that wouldn't have been obtained otherwise. They appreciated the opportunity to experience unique situations and sensations. Only one student did not find the project inspirational in any way however most of the students had very limited experience with the technology and all were initially eager to try it out. One student specifically mentioned that it was a fun project that motivated a new design direction not previously explored. Several students were interested in a broader range of app choices and suggested allowing permission to check out the headsets. A third of the class mentioned that the headsets made them feel slightly dizzy and that they used the tablets as a back-up to review some of the content without headsets. All but one student felt that the project should be included in future courses. A second iteration of the is planned to add to the data set and to gain an even better understanding about student perceptions of VR and specifically to help improve the curriculum for future use.

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