FASH*Sim* Lab: Learning About Cotton From Field to Virtual Fashion

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I. INTRODUCTION

The global pandemic is clearly illuminating the value and even necessity of online education and remote learning for students around the world (IIIE, 2020.) Virtual modules engage students, substituting valuable learning experiences that are not possible to recreate due to constraints on time and/or materials, or physical meeting ability, demonstrated by the pivot due to COVID. In the virtual lab, students are able to work together, applying course concepts to new situations and contexts, as well as develop data analysis skills. Common in the sciences, this novel concept embeds state-of-the art learning into the textile and apparel curriculum. In the twentieth century, a strong understanding of natural and synthetic fibers, yarn type, structure, and basic finishes was sufficient to develop apparel products. *"Students are no longer instructed in textile creation and basic knowledge about cloth. Therefore, they speak of chambray-like cottons and moire-like silks since they have no clue what constructions are all about"* (Edelkoort, 2014).

Even before COVID, many physical resources and facilities were shuttered due to the significant cost of maintaining facilities. At the same time, there is an increasing demand for wearable product designers to develop broader, more flexible expertise due to the influx of technology and innovative materials. (Bye and Griffin, 2015).

II. PURPOSE

The purpose of this project is to develop and launch a virtual simulation lab focused on cotton fiber and fabric. The virtual labs enable students the opportunity to experiment with cutting-edge technology in an accessible learning environment and carry out experiments not usually possible in a face-to-face course.

III. DEVELOPMENT

To explore opportunities, two low fidelity hybrid labs (1) fiber exploration and (2) fabric exploration were created in Mozilla hubs. Embedded into the lab were virtual components focusing on fabric parameters and exploration of different cotton fabric weights and constructions. Concurrent with the *virtual* lab, students examined physical swatch tool kits to get a better *tactile* understanding of the feel, weight and drape of cotton fabrics. The merging of virtual and tactile methods as well as the creation of hybrid spaces for fashion learning were the goal of this project. Mozilla hubs was used as the experiment site for both labs. Lab 1 held moving footage of tactile evaluations as well as fabric drape examples that were pre-set into Mozilla hubs. 3D assets showing specific fabrics (cotton denim and cotton velvet) were developed in CLO 3D and imported into Mozilla hubs. A lab procedure was developed and delivered during a class session. Students were asked to review fabrics and create a "best use scenario" that incorporated the functional and aesthetic use of fabric (in the form of a mood board activity.) Lab 2 was developed in Spoke. Text prompts were developed via slide deck and uploaded as jpg images. Assets were developed in CLO 3D and uploaded into Spoke. Development of beta platforms are complete and will be initially tested in November of 2021 and February of 2022.

IV. INITIAL TESTING

To conduct the experiment, students will be requested to give the last 20 minutes of their class for conducting the study. This will be a graded lab activity as part of a textile science class. The students will conduct 2 virtual lab activities (with the use of tactile swatch kit) then answer a series of functional and reflective questions. The collected responses will be analyzed to derive significant influences upon the students' responses. 100 undergraduate students taking a textile science course will be selected for the collection of responses and all the students of that class will be selected as a sample for this study. As undergraduate students are being taken as samples, their age will be between 18 and 23. Participants will be selected in the Fashion and Apparel Studies department, most respondents will be female.

V. ACKNOWLEDGMENTS

VI. REFERENCES

IEEE. (2020) Paving the Way for Transformative Learning Technologies.

Bye, E., & Griffin, L. (2015). Testing a model for wearable product materials research. *International Journal of Fashion Design, Technology and Education*, *8*(2), 139–150.

Edelkoort, Li. (2018) http://www.edelkoort.us/ *How Coronavirus is Underscoring the Digital Divide in Apparel. (2020)* Sourcing Journal.

VII. MEDIA

Lab 1: https://hub.link/MbcMR63 Lab 2: https://hubs.mozilla.com/MqHrUMu/ud-fash-fabric-exploration