



Collaborative Teaching for Technology Based Fashion Design Undergraduate Courses

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The fashion industry has evolved with the usage of various technologies and the fashion curriculum update has reflected this change to equip students with up-to-date information. However, introducing a new knowledge of technology then including application of the newly learned technique within one course time frame while meeting the course objectives can be challenging. Previous studies indicated that collaborative teaching can be effective for training students with up-to-date information to meet the demands of the current industry.

Collaborative teaching was defined as instruction including planning and delivery of content performed by two or more instructors with different topics (Davis, 2002). Advantages of collaborative teaching are a) students can see the applications of techniques that they just learned (Davis & Winter, 2019), b) students can improve creativity and innovation encouraged by more challenges from collaborative coursework (Davis & Winter, 2019), c) students can benefit through the interaction of specialized knowledge in different courses (Gam & Banning, 2012). While instructors can meet the original course objective, students can observe various applications from the new skills that they learned. In order to increase students' interest in learning the content in new technology and improve effectiveness of fashion design teaching, the purpose of the study is to explore the options of how new technology (Gerber AccuMark, laser cutting, and digital printing in this study) in fashion design can be effectively taught through collaborative teaching.

Upon receiving IRB approval, the collaborative teaching project was introduced to college juniors in two fashion design courses simultaneously. One objective in one course focused on introducing students to advanced industry practical techniques such as laser cutting and digital printing while the other course taught students to use the computer aided software, Gerber AccuMark, to draft digital patterns. Both courses are essential to prepare students for careers in the fashion industry.

Junior level fashion design students (N= 32) were enrolled in two courses at the same semester, a) Fashion Industry Techniques and b) Computers in Fashion. Projects were introduced in each course at the same time. In the Fashion Industry Techniques course, students were required to create an original design by incorporating laser cut technology and/or digital printing that they

newly learned. Students in the Computers in Fashion course were asked to digitize draped pieces or paper patterns for a design into Gerber AccuMark using AccuScan and PDS software. Additionally, the instructors from both courses set the projects regarding the two different technologies from both courses to have aligned durations and deadlines. In this case, students were able to create a garment using laser cutting and/or digital printing learned from Fashion Industry Techniques while completing a set of digitized patterns using the drapes from the garment for Computers in Fashion during a three-week project period.

After completing the projects, data was collected through an online survey method. Of 32 students enrolled in two courses, 20 students (67%) participated in the survey. Questionnaires were developed to obtain reflection about learning from the projects assigned in both classes

(Olmsted & Ruediger, 2013). Most of the questions were open-ended feedback on their learning experiences. Analysis results of students' response indicate that collaborative teaching helped students acquire knowledge of how the technology works together to execute design projects. For example, one student participant said "I like the idea of combining these techniques. It helps us realize how the skills will actually apply and work together when we're creating our own designs rather than just theorizing or practicing on pre-made patterns." Specifically, students understood how the collaborative teaching method was beneficial to not only learning the new technology but completing class assignments. "I think it was very helpful in increasing my design knowledge! I learned a whole new method of patternmaking and construction which saves a lot of time and allows me to make new, interesting design choices," said by one student. When asked about the improvement of the collaborative teaching method, students addressed the importance of pre-planning and communication between instructors. Finally, 100% student participants responded that they would use the technology learned in future design projects.

Our research concluded that the use of collaborative teaching when introducing new technologies can improve students' learning experiences as a holistic approach. Through this new teaching strategy, students could observe how one technique that they learned in one course can be applied in another course. Despite the new teaching strategy generating benefits, it also presented some challenges. This method required instructors to fulfill pre-planning and sharing teaching and evaluation responsibility. Incorporating collaborative teaching methods in design courses with CAD courses can be suggested as future studies. This study only reported experiences by students but including instructors' reflection can be included in future studies. Future studies can also measure the success of the technology/techniques taught in student's final projects.

Based on students' positive learning outcomes from the guest speaker, this strategy will continue to be used in these courses. The results of the study will help improve the planning of future course content and document the value in collaborative teaching strategies.

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