



Stimulating Creative Thinking: Project Based Learning to Design Fashionable Adaptive Clothing

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“Creative thinking is an invaluable skill for college students. It’s important because it helps them look at problems and situations from a fresh perspective.” (“Creative Thinking Skills,” n.d.). Gray (2016) indicated that creativity is one of the skills forecasted to jump into the top three essential skills for college graduates by 2020 (as cited in Harmon, 2018). Project-based learning (PBL) helps make learning relevant to students by establishing connections to life outside the classroom and by addressing real world issues (“Research Spotlight on Project-Based Learning,” n.d.). PBL is one of the various teaching methods that could help the cultivation of creative thinking skills in a classroom. Therefore, the purpose of this project was to break students out their comfort zone and stimulate creative thinking through PBL.

Objectives. The objective of this project was twofold: to get familiar with special needs in terms of clothing and users and to develop prototypes of fashionable adaptive clothing for female consumers with chronic neurological disorders such as spinal cord injury (SCI) and multiple sclerosis (MS).

Implementations. The topic of adaptive clothing was incorporated with a fashion design project in the draping course, in which students acquired knowledge in draping techniques and developed prototypes of adaptive clothing. During the draping course, many students came up with designing evening gowns as their final project ideas. To get them out of their comfort zone and stimulate creative thinking, fashionable adaptive clothing as a final project for the course was assigned to students.

On the first day of class, the instructor asked if they knew or had heard about adaptive clothing. Unsurprisingly, the concept of adaptive clothing was new to the majority of the students. First, the project in this course was meant to familiarize students with adaptive clothing and to learn about the following: what adaptive clothing is; how adaptive clothing can improve functionality for people with special needs; and what closures and design attributes should be included in adaptive clothing for the users. Second, the PBL teaching method was meant to stimulate students’ creative thinking with a real-world experience in designing garments for female consumers with SCI and MS, which are categorized as chronic neurological disorders.

All participants were wheelchair users who used their wheelchairs for everyday life. The instructor interviewed six women with SCI and MS in person or by phone, separately, at their convenience, outside of class before the semester began, due to the participants’ limited time and

mobility. Students received the collected information from the interviews regarding clothing needs on the first day of class. They then followed the design process, which initiated from further research on adaptive clothing in addition to the information provided. Students documented their preliminary design ideas with two to three sketches. The preliminary project description of fashionable adaptive clothing included the following information: discuss how to meet the functionality and fashion aspects of adaptive clothing for the target customers; provide two to three design ideas, incorporating the identified needs in illustrations; and identify fabric choices and attach the appropriate fabrics to each design separately. Students presented their preliminary project descriptions to the class. Subsequently, students revised their project ideas carefully with the instructor's as well as classmates' comments. This process was helpful for students to define their design ideas and select the best for developing the functional and fashionable aspects of adaptive clothing for the target customers. Students developed patterns using draping techniques and constructed their prototypes throughout the rest of the semester. At the end of the semester, external reviewers (one fashion professor, two nursing professors, and one of the interview participants) evaluated each student's work through its final presentation.

Learning Outcomes. The project enabled students to understand and implement new knowledge relative to adaptive clothing, user needs, design development, and material choices in addition to applying draping techniques to create prototypes of fashionable adaptive clothing for female consumers with chronic neurological disorders such as SCI and MS. The instructor encouraged the students to apply comprehensive abilities in creating and presenting garments to meet the needs and wants of the specific target consumers, as reflected by the interview findings. Students were motivated by this new topic and the entire design process to complete their projects successfully.

Students expressed that this project approached them to think more creatively and critically than before and enhanced their creativity demonstrated by their prototype garments. A student commented that "...as I entered the task of creating accessible clothing for women with spinal cord injuries and MS, I was under the impression that generating the preliminary design sketches would be simple. "Okay, make clothes that are easy to put on. No big deal", upon drawing up my first sketch I realized how naive I was...". Students used their evolving design point-of-view and work aesthetics to create garments that met the consumers' needs and expectations. The external reviewers provided students with meaningful feedback. Some students felt confident about their work after the external evaluators complimented them, whereas others received support for areas of improvement. Critiques including positive feedback and encouragement helped students broaden their knowledge of and perspectives in adaptive clothing and the user needs as a whole.

Conclusions. Students had an opportunity to gain valuable real-life experience in designing garments for the female consumers with special needs through this adaptive clothing project. This project, instructed through a PBL approach, was worthy of students' attention and

endeavors to design attractive adaptive clothing that can be more functional and fashionable than options that exist in the current market. As a result, this PBL approach was powerful for improving students' critical thinking, creativity, and decision-making about unfamiliar issues (i.e., adaptive clothing and user needs).

References

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