# University Student Mentors: Serving Populations in Transition to College

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*Strategy:* Problem-based learning where students direct and engage within their major by developing and solving problems (Savery & Duffy, 2001) is particularly useful in hands-on disciplines, such as the apparel and textiles field (Carpenter & Fairhurst, 2005; Farr, Ownbey, Branson, Starr, 2005; Kimmons, & Spruiell, 2005). Incorporating the community into a course enhances problem-based learning. In addition, it perpetuates understanding the subject coherently because students are tasked with explaining what they learned to others groups (e.g., Sparks, 2013). The purpose of this teaching strategy was to utilize problem-based learning in a fashion merchandising/apparel design course by requiring students to mentor underserved (low income, troubled, etc.) high school students in transitioning to college. The premise of the high school program was to motivate underrepresented groups in: 1) using fashion as a catalyst to pursue a career in Science, Technology, Engineering, and Math (STEM) fields and 2) empowering participants with healthy lifestyle strategies (e.g. eating, dressing, behavior modification, exercise, and stress management) to improve their quality of life during the transitional phase after high school into college.

*Implementation:* For this program, teams of university students enrolled in a wholesale and manufacturing course applied course objectives by: 1) making STEM related lessons; and 2) teaching and collaborating with underserved high school students to implement steps necessary to manufacture an apparel product. University upperclassman fashion students were required to simulate a manufacturing business by working in teams to make and sell a product within a 5-week summer course. For ten days, teams of university students taught STEM related lessons involving the steps necessary to manufacture the chosen apparel product. The profit from selling the final product was donated to an organization (e.g. Afterschool Network) for the development of underserved youth. Each day, a nutrition honors student in consultation with a registered dietitian was engaged in preparing healthy snacks and leading one-hour workshops on nutrition-related topics.

Before the start of the project, community participants (CP) were contacted to enroll in a funded two-week summer program that coincided with the university's summer session. During the summer course, university students were first taught fundamentals of manufacturing and wholesaling. They then made plans to produce and sell an apparel product (e.g. purse). After the primary steps were established, the university students made STEM lesson plans pertaining to production, marketing and selling the product. The CPs attended the 3-hour class period in the morning for 10 weekdays. With guidance from the university students, the CPs: 1) analyzed chemical and physical properties of fabrics and apparel products to ensure a profitable design (Science); 2) explored ideas related to environmental sustainability to incorporate in the final product (Science, Math); 3) employed pattern making and engineering skills to make an apparel product (Engineering); 4) analyzed the materials used to create the product and its effects on a business' financial outcome (Math); 5) applied wholesale mathematics to assure a profit (Math); 6) specified efficient methods to

make multiple copies of a product (Math); 7) implemented a sourcing plan to acquire materials to make multiple copies a product (Science and Math); 8) used Computer Aided Design (CAD) technology in product development and processing (Technology); and 9) worked with Photoshop and Illustrator to create textile designs for wholesale purposes (Technology). After each wholesale and manufacturing class period, the CPs spent time discussing and engaging with lessons on healthy practices (e.g., basic nutrition, baseline nutrition assessments, food/cooking demonstrations, grocery shopping, portion sizes, exercising, and stress management).

The success of the project was determined by surveying university students at the end of the course. They were asked questions such as how to improve the class format and what they learned by working with a CP. In addition, an assessment survey was distributed to the CP before and after the ten-day program. This survey had questions regarding CPs' experiences within the program, knowledge about STEM, and strategies in maintaining a healthy lifestyle.

*Effectiveness:* Even though the program has been offered three times (2016, 2017, and 2018) with 30 undergraduate students, the most recent experience (2018) included the healthy living strategies component. Responses to the survey indicated university students had a better understanding of the course concepts as a result of the program. They learned by explaining course ideas to others, supplementing objective tests and lectures. Additionally, these experiences provided an active learning environment that integrated diversity and provided university students with a unique opportunity to collaborate with CP.

Responses to the open ended questions on the surveys completed by 25 CPs indicated, the program provided practical life skills and information on different disciplines related to STEM, the fashion industry, and healthy living practices. This collaborative teaching experience prompted CPs exploration of their future goals. Further, CPs reported feeling better prepared and reported enhanced confidence in transitioning to college life (see Table 1).

Finally, the university program facilitators were impressed with the success of the program. Community organizers reported the program had a positive impact on their CPs.

*Conclusion:* This community-engaged project met the needs of an underserved population by helping young undecided adults 1) reconfirm interest in STEM, 2) pursing a college degree; and 3) improving knowledge on healthy lifestyle practices. Furthermore, the program immersed university students enrolled in an apparel and textiles course in an active, problem-based learning opportunity. It was a positive learning experience for all involved.

Table. Pre and post programming CP's survey results

| | **Before Programming** | **After Programming** |
|---|---|---|

| ***Item*** | ***Mean*** | ***Mean*** |
|---|---|---|
| Know about STEM | 2.72 | 5.80 |
| Interest in fashion | 5.57 | 5.40 |
| Understand Science | 3.86 | 5.20 |
| Understand Technology | 4.71 | 5.60 |
| Understand Engineering | 4.28 | 5.60 |
| Understand Math | 5.00 | 6.00 |
| Enjoy Fashion | 5.57 | 5.00 |
| Enjoy sciences | 3.50 | 5.40 |
| Enjoy Engineering | 4.43 | 5.40 |
| Enjoy Math | 5.17 | 5.40 |
| Making food choices based on nutritional needs | 5.71 | 6.00 |
| Reading/interpreting food labels | 5.56 | 5.80 |
| Know how many grams of protein to eat in a day | 2.85 | 5.40 |
| Know how many grams of carbohydrates to eat in a day | 2.14 | 5.80 |
| I enjoy learning more about nutrition and health | 5.28 | 5.80 |

*Scale ( 1= do not know; 2=strongly disagree; 3 = somewhat disagree; 4= neither agree/disagree; 5= somewhat agree; 6 = strongly agree)

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