



Technical Design and Production Management Through a Service Learning Initiative

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Introduction

Service learning opportunities lend salience and external stakeholders to course projects. Further, they offer students an opportunity to participate in something that reaches beyond the classroom. Here, we describe a service-learning volunteer opportunity and course project conducted in collaboration with two all-girl orphanages, in India and Uganda. The collaboration stemmed from an observed opportunity to distribute the product of student projects to the under-served communities represented in the orphanages, and to provide an appropriate “consumer” target for developing student work. Structure, outcomes, and student response are outlined.

Service-learning Volunteer Program

Apparel undergraduates produce a large quantity of sewn product each semester. Much of this production ends up either as memento or as waste, particularly in earlier years. Further, students consistently benefit from opportunities to practice their craft in lower-stakes environments. To explore the potential for student-produced garments to benefit under-served communities, we initially conducted a one-day service-learning activity, which students participated in on a volunteer basis. Each student produced one or more dresses following the “Little Dresses for Africa” model (<http://www.littledressesforafrica.org>). Students took photos of themselves sewing their dress(es), and wrote a note to the recipient on the back of the photo. Approximately 30 dresses were completed mostly during two 3-hour shifts, which were then delivered to our partner organization in Uganda.

Technical Design Studio Course

The success of the one-day service learning volunteer project informed the development of a semester-long course project in a Technical Design studio course. In this course, Junior- and Senior-level undergraduates follow a product from conception through mass-production and quality assurance. Students assume all possible roles during the product development and production process, from designer to technical designer to production manager and line sewer. Learning objectives for the course centered on exposing students to the full scope of concept-to-manufacture production of sewn products, including the crucial feedback loops and communication challenges of working in teams to produce a quality product.

In this project we collaborated with both the Uganda orphanage and the India orphanage. Students consulted with representatives from each organization to inform the design process, and each designed one sewn product (garment, accessory, or bag) based on these conversations. The initial set of designs were taken through two samples, with students passing work to a classmate at each step in the process (e.g. designer → technical designer → patternmaker → sample sewer, etc.). After

fitting the two samples and finalizing patterns, photos of the final samples were sent to our partner organization representatives, who selected a final set of 6 products for production.

The 6 selected products were then taken through grading, marker making, cutting, and assembly, by students in groups of 4 or 5. At least 30 of each product were produced (one per girl at each orphanage). Apparel products were graded into 5 sizes ranging from age 6 to age 18, based on measurements provided by each organization. Student groups were responsible for generating and optimizing markers, establishing quality assurance metrics, and planning production in two phases: a traditional bundle-system (half of the produced quantity) and a modular, unit-production system (the remaining half).

When production was complete, the product was “delivered” to a different group for QA assessment. Finally, a costing exercise allowed students to explore the projected wholesale and retail prices of their products using real numbers for material costs and labor performed. Examples of full production runs of two products are shown below.



Outcomes

The service-learning aspect of the course project was particularly important to students, many of whom had already received responses from girls in Uganda through the volunteer opportunity. Students were initially offered the choice of designing for an orphanage or for the campus consumer community, but no students elected to design for the campus community. In terms of educational objectives, the service-learning partnership offered a tangible, salient “consumer” for student products, with an appropriate level of expectancies for novices in their first production attempt. The start-to-finish full production scope required by the project provided students with an in-depth experience of the nuts and bolts of production, at a grasp-able scale. Collaborative teamwork required students to learn to communicate explicitly without room for error. The final costing exercise provided a concrete example of the relative costs of production, and the experiences that those costs represent.

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