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Mobile Up-Cycle Portable Research and Educational Outreach Unit

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Context. Clothing functions as a cloth familiar. Psychologically, a garment is the wearer's pliable context, a tangible imprint of individual and relational identities. In contrast to the phenomenological relationship each of us develops as a wearer of clothing to our wardrobe is the role we play as consumers of clothing. The Environmental Protection Agency estimated that 12.4 million tons of clothing was generated in 2013. An estimated 85% of these textile-based materials wind up in landfills, accounting for 5% of the total waste stream (EPA, 2013). A 2014 report by The American Apparel and Footwear Association contextualizes waste on a personal scale by offering the example that every single man, woman and child in the United States purchased an average of 62 garments and seven pairs of shoes in 2013 (AAFA, 2014). The increase in production is reflected in the amount of textile waste in U.S. landfills, which has grown at more than three times the rate of overall waste volumes for all materials. In 2014, Goodwill Industries of Delaware and Delaware County, a nonprofit 501(c)(3) organization, approached the The University of Delaware Departments of Fashion and Apparel Studies, Engineering, and Business with the aim of seeking solutions for the annual generation of more than seven million pounds of textiles. The interdisciplinary team was charged with determining potential post-market manufacturing opportunities, utilizing some or all of these waste streams, creating new, sustainable jobs and changing consumer behaviors in terms of consumption, while educating consumers on best practices in terms of disposal of and reuse of clothing. **The purpose** of this project was to develop and test a portable maker-platform and educational outreach unit as a design-based and creatively interactive solution to objectives defined by Goodwill of DE. Rendina (2016) defines a maker space as a skill-based learning environment where people come together to share materials and learn new skills within a mindset of community partnership, collaboration, and creation. Traditional portable platforms such as the bloodmobile provide goods and services in an efficient way. To ensure mobility, portable platform initiatives convert buses or trailers as a way of making services accessible to those in need. The concept has expanded to accommodate services such as self-care for the homeless, occupational care for the inbound, and STEM educational experiences for youth. This **significant** and novel research approach combined the concepts of portable platform and maker space. The lab offered skill and tool sharing, demonstration, exploratory studio, and dialogue. In this way, Mobile Upcycle Research and Educational Outreach Unit is a model that encourages empowerment and agency to wearers and consumers of clothing as a method of changing destructive patterns of waste generation.

Process. A mobile maker space was fabricated to “unfold” from a tuk tuk (a three-wheeled auto rickshaw) outfitted with a portable textile and sewing lab. Four tutorial stations were developed: (1) re/sew demonstrated sewing and embellishment; (2) re/weave demonstrated on loom weaving (3) re/knit demonstrated rope-making and knitting; (4) re/cast demonstrated accessible dyeing.

Stations were supported by a mobile upcycle team member who demonstrated techniques and guided participants in an open studio for sample making. Mobile Upcycle Research and Educational Outreach Unit launched during University Fashion Week in the spring of 2016. After this initial launch, the platform components were refined. The platform re-launched during Design Philadelphia 2016.

Conclusion. The Mobile Upcycle Research and Educational Outreach Unit hosted two maker workshops offered to the public and student population during public fashion and design events, as documented in figure 1. Four skill-based tutorial units were developed, teaching techniques to extend, by reformation, unused/unwanted apparel. A virtual platform via tumblr was developed to host tutorials and visual resources accessible beyond the physical launches. **Results** from this study will provide sufficient evidence (proof of concept) to support future external funding through mechanisms such as The Environmental Protection Agency P3 design competition or/and The National Institute of Food and Agriculture higher education challenge grant. Our high-level goal is to broaden the reach of Mobile Upcycle Research and Educational Outreach Unit to college campus communities at national and international levels. Processes initially developed as tutorial units are currently being applied toward the creation of design artifacts for the purpose of creative research and exhibition. **Acknowledgement:** This project was funded by a University Research Grant. Thank you to Goodwill of DE for apparel donation.



Figure 1. Mobile Upcycle Research and Educational Outreach Unit (a: tuk tuk and team; b: rope-making studio, c: sewing demonstration.).

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