



Creating an Open Educational Resource (OER) on Adaptive Apparel Design: Why and How

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Strategy and Rationale. We report on our experience developing an open educational resource (OER) to fill an unmet textbook need—adaptive apparel design. More than one billion people, around 16% of the world population, have some form of disability (temporary or permanent) (World Health Organization, 2023). The adaptive clothing market is currently underserved (Mallon, 2019). However, the adaptive clothing market is estimated to grow to nearly \$400 billion by 2026 (Gaffney, 2019). In the US, apparel retailers are launching brand extensions and offering adaptive apparel to aid disabled individuals, also referred to as a person with a disability (PWD), with clothing options (Weinswig & Schmidt, 2021).

Students coming into apparel design will need specialized skills and knowledge to design apparel for individuals experiencing a disability. Likewise, findings from a preparatory adaptive apparel design survey, conducted by the authors, identified that educators and researchers of adaptive apparel design desire resources to further advance this market need. Top needs included descriptions of the disabilities and their impact on dressing and clothing needs and an illustrated glossary of clothing adaptations organized by wearer needs (90% of respondents identified these points as top needs). There is a wide range of disabilities and apparel students need to understand how specific disabilities impact a client’s clothing needs. Many disabilities result in non-traditional body types/shapes or require the individual to be seated (Gaffney, 2019). Cognitive disabilities require understanding sensory apparel problems associated with fabrics, seams, or labels. Apparel designers need to be prepared for this emerging market. Presently, this information does not exist or must be gathered from disparate resources.

Current apparel design textbooks do not provide the knowledge, skills, and resources to address the apparel needs of individuals experiencing a disability. While some peer-reviewed journal articles discuss processes employed, product outcomes, and challenges for designing adaptive apparel, they are typically limited to a single disability. Websites provide information about disabilities and adaptive apparel but are not organized around and do not cover the entire apparel design process. “Open educational resources (OER) are educational materials either licensed under an open copyright license or in the public domain” (Wiley, Bliss, & McEwen 2014, pg. 781). There is a strong need for adaptive apparel OER (McKinney, et. al, 2021), the existence of which would facilitate access to resources and allow focus on designing adaptive apparel.

Purpose and Identified Audience. Informed by the gap in collective adaptive apparel OER along with survey findings from faculty who teach and/or conduct research in the adaptive apparel space, the objective was to develop instructional text and designer resources to provide free access to the knowledge and skills to design adaptive apparel and other adaptive wearable soft

goods. By developing this OER, we hoped to empower apparel students, professors, and others to positively impact the lives of individuals experiencing a disability through their clothing and other soft goods.

Implementation. Prior to developing the OER, both authors had supported students through adaptive apparel design projects in various classes. This involved collecting resources, attending related trainings, and developing relationships with Occupational Therapists. The authors requested and received funding for a small grant from their University’s Library to pay a graduate student to assist in the creation of the OER. Given the target audience, the OER was structured around the steps of the design process including (1) research, (2) sketching, (3) sample notebook, (4) mood or inspiration board, (5) pattern work, (6) first sample, and (7) completed ensemble (Mbeledogu, 2022). A list of key topics to support adaptive apparel design was developed and then organized within each chapter, structuring topics to be introduced (I) and then referenced (R). When a topic was referenced in a later chapter, instructional text about “how to” use the information in each design process stage was included. For example, the Sourcing Guide is introduced in Chapter 3 Sample Notebook, and it is later referenced in Chapters 6 and 7, with text explaining how to use the Sourcing Guide in creating the first sample and completed ensemble, respectively. See Table 1.

Table 1. Organization of the developed OER by the stages of the apparel design process

	Apparel Design Process Stages / Chapters						
	1	2	3	4	5	6	7
Key topics							
Market analysis of adaptive apparel brands and products.	I	R		R			
Descriptions of disabilities and their impact on dressing and clothing needs.	I	R	R	R	R	R	R
Illustrated glossary of clothing adaptations organized by wearer’s needs.	I	R	R	R	R	R	R
Client communication guide, including use of person-first language.	I						
Fashion illustration templates of bodies with disabilities.		I					
Sourcing Guide (where to buy notions and materials for adaptive clothing).			I			R	R
Textiles (selection and rationale).	I		R	R		R	R
Guidance for obtaining body measurements of persons experiencing a disability, including digital options.					I	R	
Common patternmaking adaptations.					I		
Guidance for conducting fittings with disabled clients.						I	R

The text and resources for each chapter were developed in a word processing software. Illustrations were saved separately as image files. Once all the content was created it was imported into the Pressbooks Create[®] software where it was formatted using a textbook template. The completed OER underwent a peer review process with input from subject matter experts. The review was structured around considerations related to the text's usefulness as a teaching resource based on a rubric, rating the text on various aspects of its organization and content. The rubric was adapted from the Open Textbook Library's Review Rubric (BCcampus, 2023). Changes suggested by the reviewers were incorporated by the lead author and contributors. The developed OER was published in an open, editable format through the University's Digital Press, with an open license that allows modification (McKinney & Eike, 2023).

Effectiveness and Follow-Up Plans. The OER is currently being used to support apparel product development students who elect to focus on adaptive apparel for their capstone projects. Mid-project results indicate that the developed OER provided students with the specific knowledge and resources to design adaptive apparel and other wearable soft-good products. Peer reviewers, who were apparel design and product development professors, indicated that the OER will support the implementation of the adaptive apparel project in any apparel design or product development course. Initial survey respondents also identified the desire for developed lesson plans (with supporting videos from PWD users) for teaching adaptive apparel design, so this is planned for upcoming phases of this work.

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