



## Using Human-Centered Methods to Inform Designing

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Novel ways to approach and synthesize the complexity inherent in the assessment of user needs and product development processes are of interest to designers. Innovative thinking relies on empathy and understanding (Ku & Lupton, 2020; Norman, 2013). This workshop brought together a panel of design researchers to introduce the concepts of human-centered design and share practical data collection methods to better understand clothing contexts and more holistically inform designing. While quantitative data collection methods yield statistical evidence regarding specific clothing concerns, practical information as to why people have such concerns is harder to discern.

The workshop began with an overview of the design thinking process (see Brown 2009) and the importance of building empathy. Understanding people's needs involves putting yourself in someone else's shoes by getting to know their circumstances, immersing yourself in their experience, and formulating a deep understanding of that experience (Brown, 2009). Body mapping (Gastaldo et al. 2012), an arts-based method of storytelling, was introduced. Body maps are an incredible tool for tapping into embodied knowledge – things we feel and know but that are not always easy to express in words. This approach was illustrated with research that focused on learning about the clothing needs of plus size women (Tullio-Pow et al., 2020).

Workshop participants engaged in several activities, the first one focused on assessing the design attributes for an ideal bag in order to write a user need statement. Following this, participants were introduced to the concept of reflexivity. According to Hammersley and Atkinson (2007), “We are part of the social world we study” (p. 18) and thus a designer's thoughts, beliefs, feelings, past experiences can affect many parts of the design process, from collecting and analyzing information, to developing and producing designs. While we cannot always eliminate these personal biases, we can learn to be aware of them by acknowledging them and taking action to reduce their impact when designing for others. Participants spent time being reflexive by creating an embodied map in activity 2.

Immersive observation techniques were illustrated with reference to Schaefer's (2020) use of touchstone tours (see Martin & Hanington, 2019) and the clothing taskscape (Tullio-Pow & Strickfaden, 2022). Workshop participants moved into key locations in the hotel to observe people and how they carried their stuff, creating a tool to document their preliminary observations in activity 3.

In the last part of the workshop, we introduced enhanced interview techniques, including the use of probes (Gaver et al., 2004; Mariampolski, 2006; Sanders & Stappers, 2014). Probes can range from images to objects, to tasks assigned to the participants. In interviews, probes help bridge the gap to the question you don't know to ask. Probes can be provided by participants. In

a study by Morris and Tullio-Pow (2021), participants provided images of their favorite basketball shoes which were used during interviews. Probes can also be provided by the researcher. Tullio-Pow (2016) brought selected garments to interviews with patients, occupational therapists, and personal support workers to adaptable clothing for people in hospital rehab. Having a physical object to reference elicits stories from stakeholder groups and recall of ideas that wouldn't necessarily have come up through use of a structured interview guide. Schaefer (2020) discussed conducting on-site touchstone tours to better understand digital knitting technology. A chance encounter with a set of fabric dictionaries at the participant's location prompted a conversation about the need for designers to educate their clients about textile basics given that their lack of knowledge created bottleneck in the design development process. This proved to be very important to the research, this conversation may not have happened had the dictionaries not been observed during the site visit.

The next data collection method was adapted from Jon Anderson's Talking Whilst Walking (2004). The method includes accompanying a participant as they complete a task. Shopping whilst talking interviews were used to identify and conceptualize clothing needs of transgender women (Tullio-Pow, Yaworski & Kincaid, 2020), and people with visual impairment (Tullio-Pow, Yu & Strickfaden, 2021). Co-designing was another approach discussed as a means to shift the power balance by establishing the participants as equal contributors to the design process (Sanders & Stappers, 2014). We outlined how personalized body scans were used to elicit women's experiences with plus size fashion to co-design clothing solutions (Tullio-Pow, Schaefer, Barry, Story & Abel, 2020). Some people focused on specific areas of clothes that were problematic, such as the inner thigh seam, suggesting that reinforced sections would prevent the fabric wearing out due to friction. By giving research participants the tools to construct their own solutions to the problems, it empowers them to tap into their experiences and knowledge and create tangible expressions that can become powerful communication tools.

The workshop integrated theory and practice by highlighting practical applications of human-centered design. The session enhanced knowledge of qualitative methods for both novice and experienced design researchers and provided an opportunity for participants to practice human-centered approaches. Communication with people prior to developing products is essential to identify design criteria and new ways of designing. This session outlined a variety of human-centered methods that combine observation with the use of probes to encourage storytelling and facilitate the designer becoming familiar with the use scenario, formulating curiosity, questions, and insights. This enhances the validity of data as there are sometimes differences between what people do and what they say they do (Watkins & Dunne, 2015) and ensures that design researchers protect against the "limitations of asking" (Mariampolski's, 2006, p. 22). Human-centered methods are situated in natural settings and are well suited to reveal the interconnections between people's thoughts, feelings, and actions so that designers might create products, services, and environments that are in tune with human nature (Tunstall, 2011).

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