28. User-Centered Design

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Definition and Background

User-centered design, or UCD, is born of the need to make user-facing products usable *and* desirable. The Interactive Design Foundation (n.d.) puts it this way:

> User-centered design (UCD) is an iterative design process in which designers focus on the users and their needs in each phase of the design process. In UCD, design teams involve users throughout the design process via a variety of research and design techniques, to create highly usable and accessible products for them. (n.p.)

Although UCD is almost always tethered to ***usability*** research, it is most concerned with architecting and engineering user experience (UX). UCD moves beyond usability testing or validation into engagement with user emotions, experience, and expectations. Within technical and professional communication (TPC) scholarship, UCD has garnered spotlights since the rise of personal computing in the early 1980s. UCD experts like Don Norman and Stephen Draper (1986) had led the UCD movement by asking researchers and designers to shift their focus from function and form to "thoughtful design of links between people, systems, and society" (Pea, 1987, p. 130). Robert Johnson (1998) urged technical communicators to pay attention to the complexity of user interactions even in the most mundane situation because they can reveal "the phenomena of technological use from [the user's] perspective" (p. 4). Today, TPC researchers study ***contextual*** as well as ***participatory design*** methods to better understand user requirements and then translate them into design guidelines (cf. Andrews et al., 2012; Rose, 2016; Walton, 2016).

There have been discussions and debates regarding the use of the word *user* vs. *human* such as in human-centered design (HCD). Citing Rob Kling and Susan Leigh Star (1998) and William B. Rouse (2007), Mark Zachry and Jan H. Spyridakis (2016) note that HCD focuses on the social dimension of user interaction with systems that UCD has sometimes overlooked. Simon Baron-Cohen (2011) criticizes that by making the human element invisible, UCD dehumanizes the user in interactive system experiences. Marina Yalanska (2018) of FAQ Design Platform (tubikstudio.com) takes on the slight nuances in the two terms and observes that "human-centered design is the process of things deeply based on general natural characteristics and peculiarities of human psychology and perception," while "user-centered design is [a] more focused and

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concise version of human-centered design with deeper analysis of target audience" (n.p.). Yalanska summarizes that HCD and UCD work hand-in-hand; the idea is to first design for humans, then define the needs of the specific category of users. Nevertheless, the shared missions of UCD and HCD have left the semantic battle unresolved. Today, UCD remains a dominant term within the UX profession.

Design Application

The core idea of UCD is to involve the user(s) of a product early and throughout the design process. That way, the design team is always engaged in discussions about usability of the product from the perspective of the user. Arguably, the most important part of UCD is constantly asking "*Who* are we designing this product for?" and "How can we *help them* achieve a desirable experience with the product?" ISO 9241-210:2019 (Ergonomics of human-system interaction—Part 210: Human-centered design for interactive systems; see International Organization for Standardization, 2019) is the basis for UCD practices (Usability.gov, n.d.). Managed by the Digital Communication Division in the U.S. Department of Health and Human Services, Usability.gov (n.d.) provides recommendations for UX best practices, including the following general phases for UCD methodologies:

- Specify the context of use: Identify the people who will use the product, what they will use it for, and under what conditions they will use it.
- Specify requirements: Identify any business requirements or user goals that must be met for the product to be successful.
- Create design solutions: This part of the process may be done in stages, building from a rough concept to a complete design.
- Evaluate designs: Evaluation—ideally through usability testing with actual users—is as integral as quality testing is to good software development. (n.p.)

While there are no specifically assigned methods for each phase in UCD, any direct engagement with users and participatory methods— e.g., focus groups, ***contextual inquiry***, and empathy mapping—are beneficial to the design process. According to the Interactive Design Foundation (n.d.), a mixture of investigative methods and tools (such as observations, surveys, and interviews) and generative ones (like brain/bodystorming) can help designers develop an understanding of user needs.

Further, a good user experience is a holistic user experience. The aim of UCD should be to capture and address a comprehensive user experience. Thus, the makeup of the design team should reflect diversity in professional expertise (e.g., psychologists, engineers, ethnographers, data analysts) as well as domain leaders like marketers, stakeholders, and of course, the users.

Pedagogical Integration

UCD is central to technical communication pedagogy as the field has been historically rooted in audience awareness and rhetorical appeals. To teach UCD principles and practices, instructors could model after Ann Shivers-McNair et al.'s (2018) approach, where students are assigned a collaborative design project to practice applying UCD principles. Similar to many recommendations made in other entries in this collection, students can be motivated to understand and empathize with users through problem-based design projects. To invoke UCD values, students need meaningful interaction with actual users who are affected by the contexts surrounding the design problem. Activities such as contextual inquiry, journey mapping, and ***participatory design*** can provide a basis for UCD in technical communication pedagogy. However, as Shivers-McNair et al. (2018) suggested, students should not only focus on UCD as course concepts but also reflect upon their own experiences in learning UCD, and how design practices in and outside the classroom can be held accountable.

Indeed, instructors also have to take into consideration that experiential learning with *actual users* for the purpose of UCD is a very difficult (if not impossible) task to do at many locations. Beyond the classroom, TPC students can learn UCD concepts via mentorship programs such as what Lee-Ann Kastman Breuch et al. (2022) called a "joint enterprise," where students are paired with industry UX professionals to collaborate on workplace projects. This sort of initiative can be beneficial for TPC programs, especially those that need real-world stakeholders to give students an authentic UCD experience.

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