38. User Experience (UX)

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User experience, or *UX*, can be defined as the sum total of activities that need to occur during a design process to ensure a high-quality user experience is produced by that process. It is a growing focus of a diverse array of professionals, from academic researchers to technical communicators and web developers working in industry settings to specialists who focus solely on the UX process. Variously called UX designers, UX leads, UX researchers, and a host of other titles, these professionals have experienced considerable job growth in recent years due in large part to the explosion of the mobile app marketplace and the increasing need for large-scale (or "enterprise") applications developed for major corporations. At the same time, many academic researchers focused on **technology** have developed **research** agendas and courses devoted to UX, as well as full-scale majors, minors, and graduate programs.

UX is a complex term with a rich **history** in fields like technical communication, human-computer interaction (HCI), and **design**. No exploration of the evolution of UX would be complete, either, without describing the important contributions of practitioners working in industry. As evidenced by the above definition, in contemporary usage, the term *UX* denotes both a design process focused on the user's experience and the experience that users have when utilizing the product of that process, be it a website, mobile application, enterprise application, or other type of technology. Closely related terms, such as *user-centered design* (*UCD*), are sometimes used as synonyms for UX and sometimes used as sub-terms.

The notion that design processes should focus primarily on user needs was first introduced to broad audiences by Don Norman in his book *The Psychology of Everyday Things*, first published in 1988 and later revised and expanded into *The Design of Everyday Things* in 2013. Norman called this notion UCD, a term he referred to earlier in his edited collection with Stephen Draper, *User-Centered System Design: New Perspectives on Human-Computer Interaction* (Norman & Draper, 1986). In these works, Norman argued that the products we use on a daily basis, even simple objects like door handles, will either succeed or fail based on how much prospective users are incorporated into the processes for designing them. Positioning users at the center of design processes would become a central attribute of UX that follows through to this day.

It is much harder to trace the etymology of the second use of the term, the experience a user has while utilizing a product. Early works such as those by Norman stressed that users have specific experiences when utilizing a product and

that these experiences matter. Another important touchstone in the evolution of UX was Jesse Garrett's 2003 book *The Elements of User Experience: User-Centered Design for the Web*. This important book invoked the term *UX* (as opposed to *UCD*) to describe both design processes and users' experiences, and it described the many dimensions, or "planes," of UX, which ranged from "the strategy plane" at the highest level to "the surface plane" at the level of the interface (pp. 31-34).

The idea that UX has not only a dual meaning but many different levels of operation and even closely related sub-terms carries through to contemporary usage. In more recent conceptions of UX, terms like *usability*, *information architecture*, *content strategy*, *visual*, and *design* often serve as sub-elements of the broader term (Buley, 2013; Garrett, 2003; Hartson & Pyla, 2012; Hoober, 2014; Morville, 2007) and are also explained as workflows that fit within the broader UX design process.

Most recently, the term *UX process* (or *UX lifecycle*) has been used to describe UX as a series of smaller workflows that represent the sum total of activities that need to occur during a design process to ensure a high-quality user experience (Hartson & Pyla, 2012, pp. 55-60). This process is typically depicted as a series of stages like the following:

1. Preliminary research
2. Prototyping
3. Usability testing
4. Maintenance

Less a linear process than a recursive and iterative one, the UX process helps practitioners make decisions when designs reach a certain threshold. A prototype (Banerjee, 2014), for instance, or "simulation of the final product," enables designers to "test whether or not the flow of the product is smooth and consistent." Similarly, preliminary research can teach designers what kind of prototype will be best to test with or what specific methods they need to deploy within the design process (Buley, 2013, p. 86). Maintenance, on the other hand, addresses what ongoing UX-related activities might look like, including when to engage in follow-up usability testing or prototyping of new features (Abercrombie, 2019). Sustainability and iteration are key concerns here, as resources are always finite, and keeping an entire design team functioning full time isn't always feasible.

Many developments in UX have been fueled, of course, by the advent of new technologies. Design processes are increasing in complexity and scope, with technologies such as **social media** applications, mobile applications, enterprise applications, web applications, augmented and virtual reality applications, and the numerous devices that make use of these applications. Because "we cannot consistently predict what kinds of information might be important to specific groups and in specific situations, we need methods by which we can understand the dynamic relationships between users and technologies" (Potts, 2009, p. 285). In other words, as digital technologies become more pervasive, the relationships

among users and technologies become increasingly complex and increasingly un-predictable. Yet despite or perhaps because of this, "most users are involved in the design process too late to influence the final product" (Andrews et al., 2012, p. 124). This failure to account for users and their contexts "explains systems which function technically but fail because of lack of user acceptance" (Albers, 2003, p. 270). In other words, UX is only growing in importance as new challenges arise in the relationships between users and the technologies they depend on.

As these new challenges arise, a wide variety of individual UX methods have arisen. Since the publication of Jakob Nielsen's landmark *Usability Engineering* in 1993, usability testing has arguably remained the primary method for assessing the quality of a product's user experience. A method devoted to empirical ob-servation of users while they test out an application in semi-controlled settings, usability testing enables UX experts to assess an application from the user's point of view. Typically, testers recruit users who are demographically similar to an application's intended user base. These participants are then asked to complete a series of tasks using the application or a prototype or mock-up of it. Users are then asked about why they completed the tasks the way they did to give designers a better grasp of how users navigate the application. Recently, remote, unmoderated usability testing has grown in popularity as UX experts use apps, such as UserTesting and UserZoom, to recruit, test, and record sessions with us-ers through a combination of videoconferencing and screen-recording software. Regardless, the goal remains the same: to test a user interface for intuitiveness, usefulness, and ease-of-use.

Only a few years after Nielsen popularized usability, Hugh Beyer and Karen Holtzblatt's 1998 *Contextual Design: Defining Customer-Centered Systems* would introduce a second important method for assessing user contexts: contextual in-quiry. Unlike usability testing that typically assesses user responses to an appli-cation's user interface in a semi-controlled environment, contextual inquiry is a semi-ethnographic method that seeks to observe users in their own context. Methods for contextual inquiry vary, from simple interviews with users in the setting in which they intend to use an application to fly-on-the-wall field studies in which researchers observe users conducting their daily tasks over a period of time. What unifies these variants, however, is an approach that attempts to balance the semi-controlled nature of usability testing with a more qualitative understanding of user behavior in context. Such an understanding is now agreed to be essential for designing an effective application.

While these two original methods remain important for both researchers and practitioners alike, a dizzying array of additional methods have since been devel-oped, often by practitioners struggling to deal with the challenges of increasing-ly complex product development cycles. A complete catalog of UX methods is beyond the scope of this chapter, but an online list entitled *UX Design Methods & Deliverables* purports to be a continually updated collection of UX methods and associated deliverables, complete with links to fuller explanations of each

method listed (UX Collective, 2016). These methods, which include persona development (Golz, 2014), competitive analysis (Withrow, 2006), and storyboarding (Little, 2013), have largely arisen due to new technological exigencies and design workflows.

One method that has cropped up largely due to the growing complexity of applications is customer journey mapping (Gibbons, 2018). This method typically pools information garnered from other methods, such as usability testing and contextual inquiry, in order to create a map of how different types of users attempt to navigate and make use of an application. The central deliverable of this method is a literal map of individual users' journeys that includes their goals, pain points, and other details important for improving their flow through the application.

For decades within the field of technical communication, scholars focused primarily on usability and how it should inform the practice and teaching of technical communication (Breuch et al., 2001; Cooke, 2010; Redish, 2010; Skelton, 1992; Sullivan, 1989). This focus remains strong in the field. However, recent work has broadened the scope of UX beyond usability (Getto & Beecher, 2016; Lauer & Brumberger, 2016; Potts, 2013; Redish, 2011; Sun, 2013). This work often seeks to identify new relationships between technical communicators and UX specialists, with many scholars arguing that these roles are beginning to blur in productive ways.

Within related fields like HCI and design, *UX* has similarly begun to take center stage over the last few decades as the predominant term for describing design processes that center users (Benyon, 2019; Bevan, 2005; Kreitzberg et al., 2019; Vermeeren et al., 2016). This shift builds on a long history of *UCD* being the predominant term—and continuing to be an important term—to describe user-focused design processes (Karat, 1997; Lazar, 2005; Silva da Silva et al., 2011).

Meanwhile, within the broad community of industry practitioners, it is almost undeniable that *UX* has taken center stage as the primary term describing work to improve user experiences. Indicative shifts include the Usability Professionals Association changing its name to the User Experience Professionals Association (UXPA) in 2012 as well as the ever-expanding list of industry-hosted conferences in UX (https://uiuxtrend.com/events/). In addition, much of the work cited in this chapter, including that from Arijit Banerjee (2014), Leah Buley (2013), Jesse James Garrett (2003), Steven Hoober (2014), and Peter Morville (2007), is from industry practitioners, all of whom seem to use *UX* as their primary term, though many still refer to the associated terms mentioned above as components of the UX umbrella. This shift can also be witnessed in important trade publications and presses such as *User Experience Magazine* (the publication of the UXPA: https://uxpamagazine.org/), *Boxes and Arrows* (https://boxesandarrows.com/), *UX Matters* (https://www.uxmatters.com/), *Rosenfeld Media* (https://rosenfeld-media.com/), *A List Apart* (https://alistapart.com), and *Nielsen Norman Group* (https://www.nngroup.com/)—publications representing the collected **knowledge** of hundreds, if not thousands, of UX practitioners.

Overall, in the past several decades, *UX* has grown from a relatively novel term to an important one within a wide range of conversations and practitioner workflows. It has become the de facto descriptor for design processes that put human needs before other concerns. And it has begun to represent a discipline in its own right, a discipline devoted to improving the experiences users have when utilizing any form of technology, from a website to a household appliance. During this time, it has also permeated other, more established fields, such as technical communication, HCI, and design. And, perhaps most persuasively, it has become a kind of rallying cry for user-focused practitioners working in a variety of industry contexts who contribute to the development of the ever-broadening array of products and services we use on a daily basis.

That being said, UX is also an emerging field, given the pace at which technologies change. With new advances in augmented reality, virtual reality, wearables, and the Internet of Things, the interfaces that users use to access technologies, not to mention the organizing principles behind them, are multiplying every year. It is possible, if not probable, that UX experts will continue to specialize in the future into different applications of UX, such as conversational UX for voice-activated systems, wearable UX for items users attach to their bodies, even *social justice*-related UX for contributing to activist causes. One thing is certain: UX will continue to grow and evolve as technologies and their attendant design processes grow and evolve. The UX we have today may very well be completely different only a few years from now. That is the exciting challenge, but also the predicament, of a field devoted to adapting new technologies to human needs.

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