Parsing the Acronyms of User-Centered Design

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Abstract

As a value and end result of the user-centered design (UCD) process, user experience (UX) is constantly evolving alongside of the users with which it is concerned. Faculty, staff, and other professionals in higher education attempt to meet the academic, economic, and ability needs of students by conducting usability testing and other user research, investing in open access (OA) and open educational resources (OER), and evaluating the accessibility of the physical and virtual services and products they currently provide or are considering. This paper will present the language used to describe UCD, as it applies to higher education, by examining the apparent overlap between UX and instructional design (ID), which leads to the concept of learner experience (LX), and the larger conversations on assessment and inclusion through universal design (UD) for college and university learning and teaching.

Introduction

Whether serving as faculty librarian, instructional designer, instructional technologist, tenure-track or adjunct professor, or even chief information or technology officer, professionals in higher education, these days, are inundated with acronyms when researching, designing, and evaluating the instructional and/or technological experiences of their users. While this is nothing new for librarians and other faculty and staff working directly with educational and emerging technologies, for some college and university employees, it can be overwhelming to parse the alphabet soup associated with user-centered design (UCD), let alone apply it to their everyday work. Based on recent professional literature and anecdotal evidence, however, it appears that administrators are beginning to realize the benefit of a user-centered approach. The renewed interest, and in some cases, campus-wide emphasis in meeting the academic, economic, and ability needs of students through investment in programs supporting instructional design (ID), learner experience (LX), and universal design (UD) is a sign of the times, suggesting a slight shift or, perhaps, expansion of focus from the culture of assessment, which has been widely discussed in professional librarianship in recent years, to the culture of usability or, more broadly, user experience (UX). This paper will present the language currently used to describe UCD in higher education.

Understanding UCD and Service Design

First, we need to identify the essential components of the UCD process in order to establish its place in higher education and its relationship to UX. According to the definition provided by Usability.gov, managed by the U.S. Department of Health & Human Services, the UCD process "outlines the phases throughout a design and development life-cycle all while focusing on gaining a deep understanding of who will be using the product." While there are no prescribed methods for UCD in general, there are

many variations of the UCD process, some more complex and detailed than others. The "waterfall" approach, for example, outlines the key phases as Plan, Analyze, Design, and finally, Test and Refine, all of which contain steps focused on usability and UX (see Figure 1). Other models are more simplistic, and yet, still emphasize the iterative nature of the UCD process (see Figure 2), making their similarities and connections to ID or instructional systems design (ISD) models even clearer.
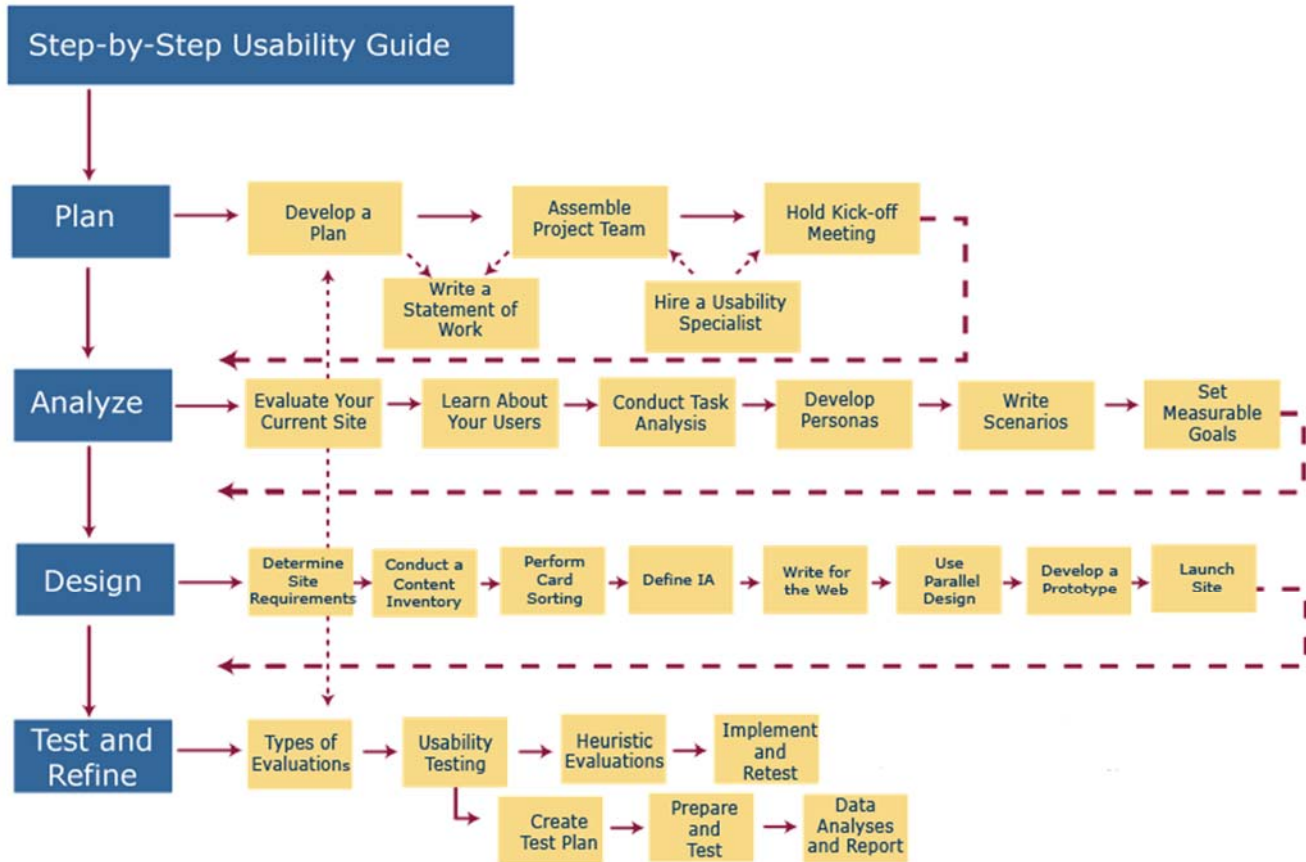

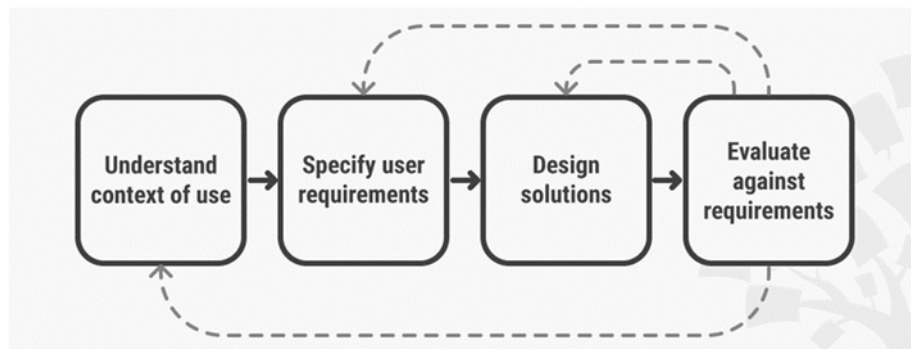*Figure 1*. UCD Process (Usability.gov)

Figure 2. UCD Process (Interaction Design Foundation)

As a value or end result of the UCD process, which originally gained traction following publication of two books by cognitive scientist Don Norman, who is also one of the cofounders of the Nielsen Norman

Group—*User-Centered System Design: New Perspectives on Human-Computer Interaction* (1986) and *The Design of Everyday Things* (1988)—UX, by design, is constantly evolving as a discipline or field and, with any luck, improving alongside of the users with which it is concerned. UX, as described by Norman & Nielsen, "encompasses all aspects of the end-user's interaction with the company, its services, and its products." In the case of higher education, the "company" would be the college or university, but the "interaction" extends far beyond the usability of our "services" or "products." Regardless of the apparent, as well as the more latent, motives to serve our users, in order to fully understand the compatibility of UX with the missions and goals of higher education, we must also carefully consider its "facets" or qualities, as illustrated by Peter Morville (2014). With Valuable placed at the center of the "honeycomb," Morville's diagram indicates that instructional and/or technological experiences should be rated based on how Useful, Usable, Desirable, Findable, Accessible, and Credible the users find them to be (see Figure 3). With these definitions and descriptions in mind, it is easy to see how UCD may affect the UX of students and vice versa, but as Rebecca Blakiston insists in her book, *Usability Testing: A Practical Guide for Librarians* (2014), in order to be effective, assessment or evaluation of these qualities must be "conducted in an ongoing, systemic way."

Figure 3. User Experience Honeycomb

Secondly, we need to understand service design in higher education. Establishing the roles of users and service providers is integral in the design thinking process, particularly during the initial Empathize and Define steps (see Figure 4) as explained by Nielsen Norman Group Chief Designer Sarah Gibbons (2019), which are concerned primarily with the experience of the users as well as their needs. Within the scope of this paper, the users are assumed to be college and university students, while faculty, staff, and other professionals are assumed to be the providers, or facilitators, of instructional and/or technological services and products that assist or support the users. Before we can begin the Ideate, Prototype, and Test steps (see Figure 4), however, we must commit ourselves to observing, understanding, and thinking about problems with our services and products as recommended by Joe J. Marquez & Annie Downey in their books dedicated to the methods and mindset of service design and evaluation—*Library Service Design: A LITA Guide to Holistic Assessment, Insight, and Improvement* (2016) and *Getting Started in Service Design: A How-To-Do-It Manual for Librarians* (2017). According to Marquez & Downey's work, eve-

rything that is experienced by users is evaluated as a service, including instructional materials and products, both physical and virtual, offered by service providers. Marquez & Downey have even gone so far as to develop and disseminate, as part of the American Library Association's 2017 Future of Libraries Fellowship, score cards for heuristic analysis of services (see Figure 5). These cards instruct and assist service providers as they holistically assess the following criteria: Meeting Current Needs and Expectations, Consistency of Service Delivery, Consistency of Communication, Context Appropriate, Acceptable Interaction Costs (or Ease of Use), Empower User Autonomy, Reasonable Duration and Tempo, Welcoming, Accessible, and Clarity of Purpose and Function.

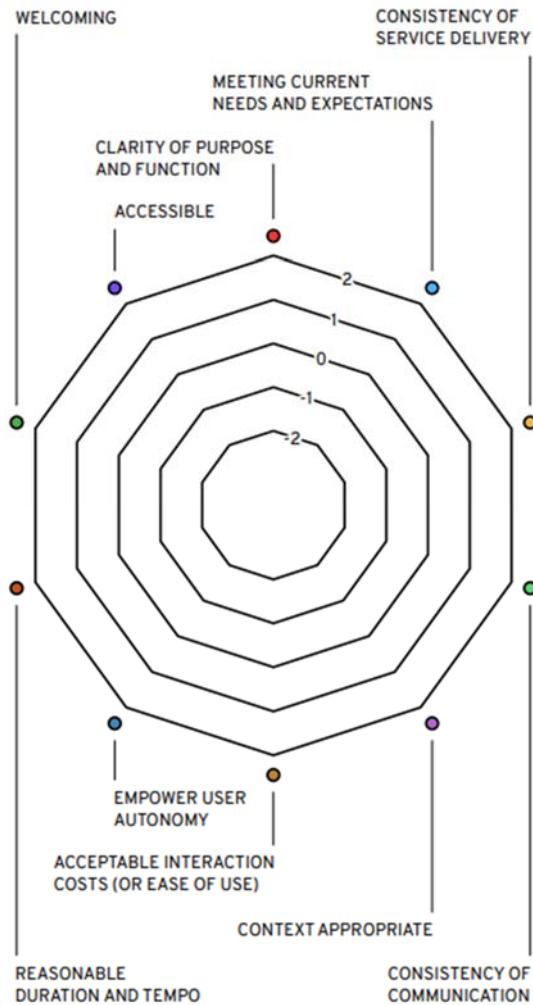*Figure 4*. Design Thinking (Interaction Design Foundation)

Figure 5. Library Service Design Heuristics Card

Clearly, design thinking and service design are both mindsets in addition to actual processes by which service providers in higher education may learn more and even co-create better experiences alongside of users inside and outside of the classroom. In an effort to "move towards a more thoughtful and inclusive assessment practice," Ebony Magnus, Jackie Belanger & Maggie Faber (2018) report turning to UX approaches such as participatory design by "inviting [sic] users into projects as experts as well as participants, and relying on their interpretation and recommendations to guide data analysis." This effort to include users in both the evaluation process and the analysis of results marks a key difference between assessment as it is commonly performed on college and university campuses, usually in the form of an anonymous survey or questionnaire, which is designed to demonstrate accountability, impact, and/or value to administration, and ongoing and iterative usability testing and other user research, which is designed for improvement. As concluded by Krista Godfrey (2015), service providers "cannot meet user needs without talking to and observing users in their spaces, both physical and virtual." Traditional assessment tools, like surveys and questionnaires, that emphasize or, perhaps, reluctantly depend on quantitative versus qualitative data collection, are in many ways insufficient and antithetical to authentic assessment of the instructional and/or technological experiences of users.

Designing Services and Products

Last but not least, we need to acknowledge the practical application of the UCD process, and even service design, already present on college and university campuses. Providers, or facilitators, of instructional and/or technological services and products in higher education currently attempt to meet the academic, economic, and ability needs of users in a variety of ways. By creating, conducting, and analyzing the results of usability testing and other quantitative and qualitative user research, they set out to learn more about the experiences, needs, and wants of students. While the "culture of assessment" appears to be alive and well in higher education, placing accountability at the forefront of our efforts to improve UX, there is still work to be done in terms of using collected data to inform decision making. According to research conducted by Meredith Gorran Farkas, Lisa Janicke Hinchliffe, & Amy Harris Houk (2015), support and prioritization of a "user-focused" culture, at least in "academic libraries at four-year institutions in the United States," depends greatly on the willingness of administration to make change based on UX assessment or evaluation. Likewise, though focusing only on learning and teaching, Claudia J. Stanny (2018) suggests that an evolution to a "culture of improvement" is possible if institutional leaders provide opportunities for faculty to participate in professional development dedicated to assessment work. Another way in which service providers, and their administrators, attempt to meet user needs is by investing in open access (OA) and open educational resources (OER). While "investing" may seem an unlikely word to use in discussing efforts to replace expensive textbooks and various proprietary software subscriptions with open, low or no-cost course materials, on some college and university campuses, money is most definitely exchanging hands, primarily in the form of incentive grants or stipends, in order to promote faculty adoption of OA and OER, and professional literature on the topic, especially that which includes collaboration between faculty librarians, instructional designers and/or technologists, and professors, is overwhelmingly positive. Finally, service providers are, or at least should be, in compliance with the American Disabilities Act, regularly evaluating the accessibility virtual services currently being used and those being considered for future use—though not necessary implementing usability testing detailed in Steve Krug's book *Don't Make Me Think: A Common Sense Approach to Web Usability* (2000). This extends beyond the appropriate use of HTML alt tags and headings, color contrast, and closed captioning. When we discuss accessibility within the scope of UX, we are really talking about universal design (UD), which includes physical services and products experienced by the user, and this conversation leads us to back to UCD and its connection to ID or ISD.

Learner experience design (LXD or LX) is a somewhat new yet logical, and potentially revolutionary, combination of ID and UX. Instructional designers, of course, take a user-centered approach when researching, designing, and evaluating experiences for learners, and their field has a couple of tried and true models for service and product design and development. The ADDIE model, for example, presumably starts with Analysis and ends with Evaluation (see Figure 6). Likewise, the Dick and Cary model for ISD "starts" with Identify Instructional Goals, which includes Conduct Instructional Analysis, and "ends" with Develop & Conduct Summative Evaluation, which ideally informs the next cycle of ID (see Figure 7). Both models are cyclical and iterative to an extent, and as previously mentioned, UX research and design is ongoing and always evolving alongside of the users with which it is concerned. In both ID and UX, the ultimate goal is to systematically improve student and/or user engagement and/or experience, and thanks to rapid development in educational and emerging technologies, learning and teaching tools are evolving as well. "The transition to virtual content has made entirely new layers of student data available," writes iDesign Cofounder and Chief Academic Officer Whitney Kilgore (2016), "Learners now leave a virtual footprint that allows designers to understand how students are interacting with course

materials and for how long." While it takes some imagination to combine ID and UX, it is fairly natural synthesis, especially when comparing the ways in which we currently measure success in each of these fields. Assessment, insight, and improvement of virtual services and products as described by Kilgore (2016), however, is not sufficient UX. We also need to evaluate physical services and products, the in-person instructional and/or technological experiences of users, and LMS data analysis, however advanced, will not provide a full picture of our users and their needs. In order for the UCD process to be effective, it is imperative that we design and develop services and products universally and with all potential users in mind. "Because disability is always intersectional and accessibility has more radical potential than at first glance," Stephanie Rosen (2017) explains, "accessibility can be a powerful tool for justice." Whether LX is simply an evolution of ID or, perhaps, a revolution is still up for debate, but its connection to UCD, accessibility, and inclusion is clear.
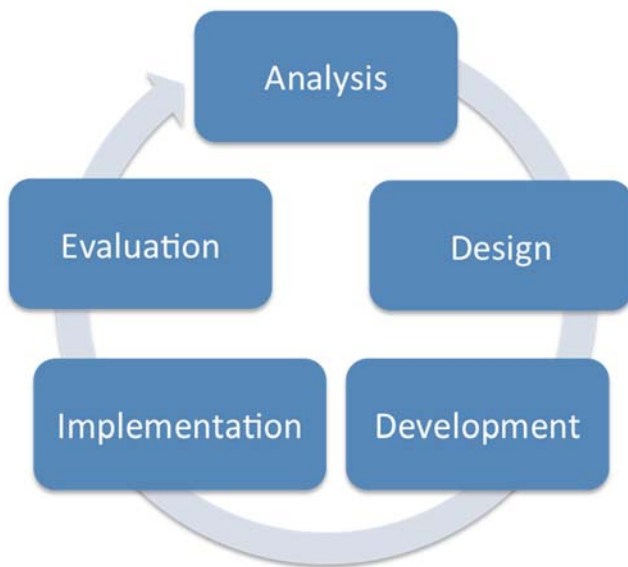

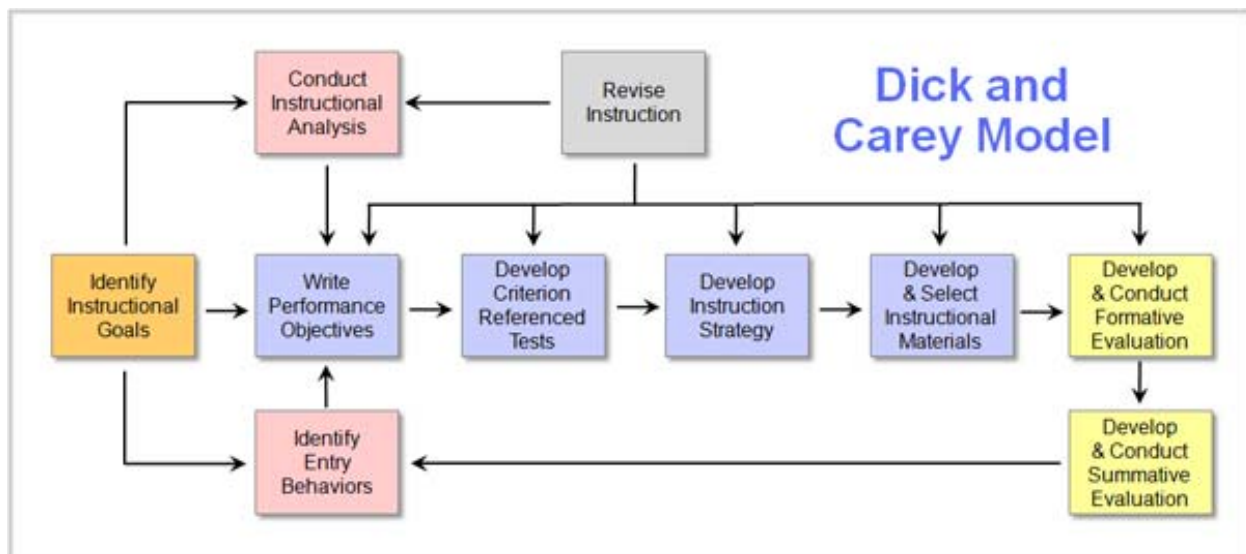*Figure 6.* ADDIE Model (Educational Technology)

Figure 7. Dick and Carey Model (Educational Technology)

Conclusion

While the language used to describe UCD varies and continues to evolve with its users, the overlap between ID, the concept of LX, and the larger conversation of inclusion through UD for college and university learning and teaching is apparent when considered within the scope of UX. Whether serving as faculty librarian, instructional designer, instructional technologist, tenure-track or adjunct professor, or even chief information or technology officer, professionals in higher education, these days, are inundated with acronyms when researching, designing, and evaluating the instructional and/or technological experiences of students. Despite the difficulties we may have implementing best practices, it is worth the time and effort it takes to explore frameworks and seemingly interdisciplinary models that could possibly improve services and products at our institutions, and it is important to avoid viewing renewed efforts to meet the academic, economic, and ability needs of students as "trends." Based on recent professional literature as well as anecdotal evidence, it appears that administrators are beginning to realize the benefits of the user-centered approach, and parsing the alphabet soup associated with UCD is just the start. Moving forward, we must evolve from a "culture of assessment" to one focused on using ID and UD processes and concepts to improve LX and UX.

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