What do We Teach When We Say We Teach UX? A Study of the Practices of TPC Instructors

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Abstract. Although programs in TPC are well positioned to prepare students for careers in user experience (UX), teaching UX can be challenging due to its breadth and complexity. Despite these challenges, many TPC instructors teach UX with little support or training. To understand and improve how TPC instructors teach UX, this article considers the research questions: 1) What do TPC teachers do when they say they teach UX? What are their definitions, approaches, and activities? 2) What are the structures or constraints that influence UX pedagogical choices? Triangulating data from 80 questionnaire responses, 22 interviews, and a corpus of 53 teaching artifacts, we respond to a long-standing call for pedagogical scholarship on UX with evidence-based practices for instructors and programs. Findings demonstrate the variability and flexibility of teaching practices including how instructors define UX, articulate their expertise, and embed UX into their assignments, courses, and programs. We also demonstrate and discuss the structures and constraints that influence UX pedagogical choices. We conclude with implications for instructors, programs, and the field.

Keywords: Curriculum, Pedagogy, Scholarship of Teaching and Learning, User experience, UX

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In the inaugural issue of *Programmatic Perspectives*, James Zappen and Cheryl Geisler (2009) identified the shift from delivering information to users to creating immersive user experiences. This shift requires not just a change in what we teach in technical and professional communication (TPC) programs, but how we teach. They ask if TPC programs can fully embrace this shift to "a design mandate" that places our students and faculty as an essential part of designing and creating new technologies (Zappen & Geisler, p. 25). As an aside, we use the term TPC in a similar way that other authors in *Programmatic Perspectives* do, as a broad term that encompasses the larger field which includes a vast diversity of programs that teach students to write, design, and create in ways that help other people get things done. So, that leads us to ask has TPC taken up the design mandate in the classroom, and, if so, in what way?

Over a decade after Zappen and Geisler's inquiry about shifting to a design mandate, research shows that user-centered design, usability, and/or UX are rarely accounted for in programmatic learning goals. For example, usability only appears as a learning goal in 11 out of 376 Student Learning Outcomes (Clegg et al., 2021). Some TPC programs include a usability course (Melonçon & Henschel, 2013), but a sole course in usability does not fully capture the iterative design process of UX (Zhou, 2014) because it only focuses on the evaluation stage, namely usability testing. Courses focused explicitly on UX design are less common and occur in a minority of TPC programs (Getto et al., 2013). There has been a long-standing call for TPC programs to focus more attention on expanding UX pedagogy (Zhou 2014; Getto et al., 2013) including practical challenges on teaching these topics, such as usability testing (Chong, 2016) and how UX practices are rhetorically situated (Rose & Tenenberg, 2017). This work is particularly relevant now because students in TPC are experiencing a growth in UX positions that include responsibilities traditionally found in job postings for technical communicators (Lauer & Brumberger, 2016). We acknowledge that TPC programs are highly diverse in terms of their structure, resources, curricula, and priorities. Not all TPC programs may be interested in or have the current capacity to shift to UX, but for those who are, there is a need for programmatic research to support this goal.

TPC instructors are engaged in teaching usability (the evaluation method) and UX (the process). Later in this article, we distinguish between these two terms, which makes for a rich discussion that reveals why focusing on UX in our programs is important. Although these differences seem granular in nature, the intersecting

terminology reveals larger conversations about UX, especially how the terms, techniques, and growth have made fundamental shifts in a relatively short amount of time. It is within these larger shifts that we situate this work.

While TPC programs and instructors are well positioned to help prepare students for UX careers and workplaces, teaching UX can be challenging. First, UX is highly interdisciplinary and draws from a variety of related fields, such as human-computer interaction and cognitive psychology. While interdisciplinarity is a strength of the field, it can be a challenge within the confines of higher education due to its structure. According to Karri Holley, because the university is "relying on a departmental structure to organize the basic functions of teaching and research, interdisciplinarity transgresses the organizational boundaries that have long defined American higher education" (2009, p.1). Second, UX includes a wide breadth and depth of content areas such as information architecture, user research, content strategy, visual design, interaction design, and accessibility and a wide range of methodologies and methods (Rose & Turner, 2020). Being able to teach the range of UX skills and competencies to students is a challenge, especially within a field like TPC where UX may just be a small part of the curriculum or an elective. Third, many TPC instructors receive little support or training to teach topics in UX such as usability (Chong, 2018). But despite these limitations and challenges, many TPC instructors do teach UX, including the authors of this article. However, there is little scholarship examining how and why TPC instructors teach UX in the way that they do, which is the primary motivation for this scholarly contribution.

We build on Felicia Chong's valuable work (2016, 2018) which considers to what extent usability is taught in TPC courses and programs. We extend Chong's work to focus on how UX is taught in TPC courses and programs. The research questions we explore in this article are:

1. What do TPC teachers do when they say they teach UX? What are their definitions, approaches, and activities?
2. What are the structures or constraints that influence UX pedagogical choices?

The article is structured as follows. First, we provide a background that differentiates the terms usability and UX, review work related to UX pedagogy in TPC, and identify the need for more programmatic research. Second, we describe the design of our study, including the methods, recruitment, data collection, and analysis. Third, in the results section, we present key qualitative findings and descriptive statistics

from our dataset, including salient characteristics of TPC courses that include UX and identify a list of tensions that UX instructors encounter. Finally, we discuss the key takeaways for instructors and programs.

Background

Differentiating Usability and User Experience

When we say user experience pedagogy or UX pedagogy we are referring to the teaching of theories, methods, and practices of UX. We are not referring to the ways students *experience* pedagogy and/or curricular materials (such as Opel & Rhodes, 2018; Bartolotta et al., 2017; Brizee et al., 2012). Although that scholarship is much needed, it is outside of the scope of this research.

First, it is helpful to look at the difference between two key terms: usability and user experience. Usability, according to the ISO definition, is "The extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency, and satisfaction in a specified context of use." (International Standards for Organization, 2018, 3.1.1). According to Whitney Quesenbery (2014), usability has five dimensions she calls the 5Es, which include effective, efficient, engaging, error tolerant, easy to learn**.** These dimensions can be evaluated and measured through the research method usability testing, which, according to Carol Barnum, is "the activity that focuses on observing users working with a product, performing tasks that are real and meaningful to them." (2010, p. 12). Often the quality of usability can be conflated with the research method of usability testing but they are different. As quoted in Barnum, Ginny Redish differentiates the two terms: "*Big U Usability* is everything that goes into 'creating a product that works for people. It encompasses the entire process and includes all the techniques in the usability specialist's toolkit. *Little u usability* is associated with usability testing.'" (2010, p. 54, emphasis original).

As Redish and Barnum (2011) point out, "Over the last three decades, 'usability' has moved from a primary focus on usability testing, to user-centered design—a longer, broader, and deeper infusion of a usability approach and toolkit throughout design and development, [and] to UX—focusing even more broadly on the larger context of use" (p. 94). This shift from usability to UX has continued over the past decade to the extent that UX is now the standard term to refer both to the design process and the outcome of the design process.

The term user experience, or UX, can also be challenging to define because it functions in two ways. First, it refers to the full experience

that users have with a product, and "encompasses all aspects of the end-user's interaction with the company, its services, and its products." (Norman & Nielsen, n.d.). Second, UX has become a shorthand to refer to the user experience design process, sometimes also referred to as user-centered design. For the purpose of our work, we expand Leah Buley's (2013) definition of UX to: 1) interdisciplinary professional practice and field informed by a variety of disciplines; 2) iterative process that includes a flexible set of methods and techniques for researching what users want and need in order to design products, services, and experiences; and 3) outcome, or the overall effect and material impact created by the interactions and perceptions that someone has when using a product or service.

As mentioned earlier, there has been valuable research examining usability pedagogy (Chong, 2016, 2018). To understand how TPC addressed usability and user testing in textbooks, course syllabi and descriptions, and pedagogical texts, Chong (2016) reviewed generalist textbooks used in undergraduate and graduate courses at Michigan Technological University and openly accessible technical communication syllabi online. From this analysis Chong (2016) found that TPC teaching materials were

> still advocating for the need for usability implementation rather than describing successful (or unsuccessful) practice-level work that is involved in such efforts. Textbooks for introductory technical communication courses offer (some) usability methods, but they often lack in providing useful information on the process of, and the rhetorical strategies necessary for, enacting such Methods. (p. 21)

TPC addressed usability and user testing as an important, but unmet, area of focus that instructors and students should do.

When interviewing two TPC instructors and two students about their experiences with usability testing, Chong (2018) found this implementation gap created challenges for instructors at the classroom level. When learning about usability, students valued reading about usability and working hands-on with users in class. However, instructors had received little support or training in teaching usability and had trouble locating resources and having a standard language to talk about practical usability challenges with students (p. 201-203). In addition to calling for graduate programs to teach usability-focused classes, Chong (2018) called for pedagogical research in TPC to help bridge the gap between the value of usability to technical communicators and the implementation of usability

by technical communicators: researchers could conduct a larger, ethnographic study of diverse students and instructors. A larger study should include "interviews with the students about their experiences with usability testing and interviews with the instructors about their preparation to teach usability as well as what they teach, how they teach it, and how they assess students' work in usability techniques, including usability testing" (Chong, 2018, p. 204).

Chong's work deeply examines pedagogy through textbooks, course materials, and a small number of instructor interviews (2) at one institution. In our project, we extend the questions from Chong's work to consider the broader topic of UX and how it is taught in TPC courses and programs. Chong's scholarship aptly described the issues of teaching usability testing that become compounded when research like ours investigates how we teach different parts of the UX process and not just the evaluation methods. In this study, we build on Chong's work in two ways: we extend the unit of analysis (from usability to UX) and we extend the methods (from a study with two instructors at one institution to a programmatic study with instructors across different institutions). Many other disciplines have a stake in this conversation, but we focus on how it is taught in TPC because we believe that instructors in our field have a valuable point of view that foregrounds the humanistic traditions of TPC (Miller, 1979).

A Call for More Scholarship Related to UX Pedagogy

There has been a sustained call for more pedagogical research related to UX. After reviewing literature explicitly related to UX training, Guiseppe Getto and Fred Beecher (2016) found that

> though much UX education happens through on-the-job training and webinars, and as an introduction to professional theory and practice in university courses, there are few academic programs devoted specifically to training job ready UX designers, and still fewer articles and no books devoted to this topic. (p. 154)

When introducing their collection of theoretically grounded pedagogical approaches to TPC, Angela Haas and Michelle Eble (2018) identified the dissonance between a richly evolving disciplinary landscape and the lack of contemporary scholarship that reflects and connects emerging trends to programmatic, curricular, and pedagogical work:

> Not only are we presently in short supply of book-length projects focused on theoretical and methodological approaches to teaching but the texts we currently have do

> not fully theorize the implications of the cultural studies turn nor attempt to address the social justice turn in relation to technical communication curriculum design and pedagogy. (p. 6)

Similarly, we understand UX pedagogy as a rapidly evolving approach and locate ourselves within a growing scholarly conversation that calls for thoughtful, inclusive, and localized solutions within TPC classrooms. Below, we summarize some of that related work. First, we sketch the incongruity between the call for more sustained research on UX pedagogy and the limited responses in TPC, particularly in *Programmatic Perspectives*. Then, we summarize emerging research about UX pedagogy in TPC.

A Need for Additional Research on UX Pedagogy at the Programmatic Level

In this section, we consider if (and to what extent) the design mandate in general and UX specifically have been taken up in programmatic and pedagogical scholarship of the TPC field.

There are examples of scholarship that use techniques of UX and usability as a way to study an element of curricular implementation or programmatic assessment (refer to Bemer et al., 2009; Vealey & Hyde 2008; Balzhiser et al., 2015) and discussions of UX or usability labs being positioned as a way to enhance learning opportunities and support revenue generation (Howard, 2015).

There are helpful examples of programs that have shifted from a TPC focus to a UX focus. For example, Scott Kowalewski and Bill Williamson (2016) trace their assessment process and the program evolution to be more specifically focused on usability studies and UX. Tammy Rice-Bailey and Nadya Shalamova (2016) detail the shift from TC to UX at the Milwaukee School of Engineering. Rice-Bailey and Shalamova's impetus for shifting the program was due to declining enrollments and the threat of pending dissolution. A component of shifting from TC to UX was a deep connection to and engagement with local industry partners, which continues to be a key component of their program (Shalamova et al., 2021). Similarly, Mark Zachry and Jan Spyridakis (2016) discuss the transition of the Technical Communication program at the University of Washington-Seattle to the Department of Human Centered Design & Engineering within a broader conversation of the growing interest in human-centered design. As they detail, the shift was the result of the shift of faculty research interests coupled with institutional pressures to have a department name more in line with engineering due to their position

within a College of Engineering. The name change shift was intentional and informed by collaboration with internal and external stakeholders, including students, alumni, and advisory board members, in addition to industry demands and looking at competitor programs. These examples at Milwaukee and Seattle are notable for being situated in engineering schools and both appear to be thriving and successful after these changes.

Some scholars have taken up the different, disparate, and disconnected aspects of UX pedagogy to document the complexities of their own UX teaching, offering bespoke approaches to those issues, and requesting more systematic scholarship for best practices. For example, when sharing his redesign of a TC service course, Jason Tham (2021) frequently emphasized his need for an expanded model of technical communication pedagogy to account for "highly complex experience ecosystems." After interviewing industry practitioners, including some who self-identify as UX analysts, Tham expanded Stanford d.school's design thinking process, (a common model in UX practice) into a pedagogical framework that placed assignments within its sequence. As a result, Tham was able to redesign his curricula to guide students through more complex experiences rather than traditional task-based scenarios:

> A notable distinction between the initial phase in the design challenge compared to conventional academic research projects (which often begin with the researcher's point of view on particular problems) was the emphasis on empathy which led to user-centeredness in problem solving. It encouraged students to move from a designer/researcher centric approach to problems to a user-focused practice (p. 137).

When doing research about TPC practices, we wanted to go beyond solely just understanding course titles and instructor demographics. As Lisa Melonçon stated "what the field truly needs to understand is how these individuals do their work, the impacts our institutional structures have on their work lives, and how such factors impact student learning" (2018, p. 215). Our study is part of a larger effort to better understand and improve research related to UX pedagogy (Rose & Turner 2020, Rose & Turner 2021) that can both inform outcomes for programs and instructors alike.

Methods

The following section provides details on the methods for the study. The study design was reviewed, approved, and determined to be

exempt by both of our institutional review boards (Santa Clara University, Protocol ID #20-02-1429, Exempt; University of Washington Tacoma, #STUDY00009696, Exempt). The goal of the study was to gather data from multiple instructors across multiple institutions for the purpose of improving programs at the course and program level, including instruction and outcomes.

Project Origins and Reflections on Positionality

Good qualitative research includes transparency, self-reflexivity, and, when appropriate, disclosure about positionality (Liang et al., 2021). This project was conceived of when the two authors attended the 2019 ACM SIGDOC conference and ended up in a deep conversation about their teaching practices related to UX. We had a lot in common: industry experience in UX, tenure-track and tenured positions at mid-size universities, and developing new (and refashioning old) curriculum around UX. This initial conversation led to a shared belief that UX was clearly within the purview of TPC, but conversations about teaching UX happened informally and infrequently. As a result, we wrote a proposal for a CPTSC research grant, which was funded, and proposed a workshop at the 2020 ACM SIGDOC conference. The workshop was well attended and eye-opening. From that experience, we concluded that there was both a large interest and pressing need to support others in TPC to enhance their UX knowledge and pedagogical practice. We want to be transparent about our own paths to UX, which directly impacts our stance for this research: TPC has a clear historical connection to UX practice.

As a professor and internship director at a small liberal arts college (SLAC) in the heart of Silicon Valley, Heather has identified local realities within the Bay Area and developed curricula to support TPC students interested in UX internships and careers. For more than a decade, Heather has worked as a UX consultant and visual designer with community organizations, for-profit businesses in tech and finance sectors, stand-alone research centers, academic and/or university presses, national associations, college offices, and individual entrepreneurs.

Emma is a professor who has co-developed several programs on technical communication and design and has been teaching and practicing UX for over two decades. Her background working in the UX industry in a tech hub on the West coast brings with an embodied knowledge of practice. She focuses on inclusive design practices that welcome students from a variety of disciplines and is particularly interested in encouraging students from humanities and other non-

STEM disciplines to explore UX.

Sampling and Recruitment

We purposefully sampled participants who were associated with the field of TPC and expressed interest or expertise in teaching UX. Our sampling was intended to gather a broad range of instructors from different TPC programs in higher education so we could better understand how they teach UX in the courses and programs.

Screening Questionnaire

To understand how instructors from TPC approach teaching UX, we distributed a Qualtrics questionnaire. The goals of the questionnaire were to: gather information on how instructors define UX; collect artifacts for analysis; recruit and screen participants for in-depth artifact-based interviews; and to understand how instructors rate their proficiency and expertise in teaching UX.

Our goal was to recruit participants who identified as being part of the field of TPC and had an interest or expertise in teaching UX. We recruited participants in several ways. First, we directly invited individuals in the field of TPC who had a record of engaging in UX topics. We developed a list of names gathered from people who had published or participated in conferences in the field, including the last previous two years (2018-2020) of ACM SIGDOC, IEEE ProComm, the 2017 Sites of Translation User Experience Research Center Symposium, the Louisiana Tech Usability Studies Symposium, and from 1998-2018 of ATTW. From the list of attendees at these conferences, we identified individuals who used the following keywords in their title or abstract: user experience, usability, user-centered design, content strategy, and other topics closely related to UX. This initial list generated 200 names. We then searched for and located their emails via public records or websites and were able to identify 120 active emails. We directly emailed this list to invite them to complete the questionnaire. Second, we also distributed the questionnaire to listservs of three primary professional organizations in TPC (CPTSC, ATTW, ACM SIGDOC); these organizations were chosen because they are considered part of TPC and include individuals who may be interested in UX. We also posted to several Facebook groups, including "Technical Communication & Rhetoric Scholars" and "SIGDOC forum" in addition to distributing the questionnaire via Twitter with the hashtag #UX. The recruiting text for social media read "Do you teach #UX? We are looking for instructors from the field of Technical and Professional Communication to share their teaching strategies. Complete this 15 min questionnaire and

share your strategies!" We also posted the link to the questionnaire on our project website. Based on these recruitment efforts, 80 respondents completed the questionnaire and out of these 33 shared artifacts and 32 indicated interest in participating in a follow-up interview.

Interviews

We reached out to all 32 questionnaire respondents who expressed interest in participating in an interview. Out of these, 22 instructors responded and were scheduled for a 1 hour semi-structured, artifact-based interview via Zoom. Participants were asked to share and discuss curricular documents (broadly defined) that represent how they approach teaching UX. Out of 22 interviews, both authors conducted two interviews together and 10 each on their own. Each participant was asked to respond to a series of questions asking about their background, teaching practice, program, to share and explain their artifact, and to reflect on their practice. Participants were given a $25 gift card as an honorarium for participating in the study. Each interview was automatically transcribed via Zoom transcription. After automated transcription, research assistants corrected machine errors into quasi-verbatim transcripts. Refer to Appendix A for the list of interview questions.

While we did not collect demographic information about our participants, all 22 instructors who participated in the interviews taught at four-year institutions or extension programs of four-year institutions. In terms of rank, participants included graduate instructors, teaching stream (non-tenure track), and tenure track/tenured. Out of the 22 participants in the study, 20 were in North America, 1 was in South America, and 1 in the Middle East.

Artifact Corpus

During the screening questionnaire and the interviews, participants were asked to share curricular artifacts (broadly defined) that represent how they approach teaching UX. Participants shared a total of 53 artifacts, including syllabi and course schedules, assignment sheets/project guidelines, student work, in-class activities, lecture slides, program descriptions, lists of major courses, LMS modules, tool or technology demos, templates, and online teaching portfolios. Some participants shared multiple artifacts during the interview and in the questionnaire. Each artifact was categorized by type (syllabus, assignment, lecture notes) and associated with an interview or questionnaire participant.

Data Analysis

To broadly understand how TPC instructors approach teaching UX, our data analysis included multiple methods to triangulate the data sources. The sources for this study included a subset of the transcriptions of interviews, qualitative questionnaire responses, and exploratory content analysis of artifact corpus (Chong, 2018). For this study, we considered the interview data to be the primary source. We also analyzed the participants responses to the questionnaire and their artifacts to provide context and depth in addition to their self-report teaching practices. Because the purpose of our study is to understand how TPC instructors approach UX, our analysis focused less on the rhetorical genre features of the artifacts and more of the presence of concepts or themes and their frequency. When analyzed in this way, artifacts become "pattern-amplifying devices" that when viewed in a corpus may reveal "incomplete but nevertheless vital glimpses of an interconnected disciplinary domain focused on relationships that define and cohere widespread scholarly activity" (Mueller, 2017, p. xii). Because not every participant submitted a syllabus as their artifact, we analyzed the interview transcripts in which every participant was asked about their activities, assignments, and readings. For the qualitative questionnaire, we focused specifically on how participants defined UX for this analysis to inform our research questions. As we reviewed the data from the study, we first developed a series of questions, which are listed in Table 1. We then used the questions to drive the data analysis across of all three sources to triangulate the results.

Table 1. Data analysis questions and source data

Question	Questionnaire	Artifact corpus	Interviews
How do instructors describe their UX teaching expertise and how is UX integrated into their programs?	X		X
How do instructors define UX?	X	X	

How are classes and/or programs structured?		X	X
What activities and assignments do students do?	X		X
What textbooks or readings are assigned?			X

Immediately following each interview, the primary interviewer wrote a reflective memo to capture highlights and emerging themes from the interview. Memos have a variety of functions in qualitative research, in our study we used memos analytically and to better understand what was going on in the data. According to Melanie Birks et al. (2008), analytical memos are used to identify similarities and differences, explore relationships, and to generate "theoretical assertions that are grounded in raw data, yet possess the quality of conceptual abstraction" (p. 71).

After all of the interviews were conducted, other members of the research team (the other interviewer and two research assistants) read each transcript and created their own reflective memo. These memos were used to help provide a summary of the interview, create theoretical assertions, and to provide a space for researchers to notice and comment on differences within and across the interviews. In addition to memos, the research team read and re-read the interview transcripts and engaged in multiple rounds of generative coding and categorizing for each question, comparing and revising categories and generating a map of the categories that captured variables to organize the data for key characteristics and pedagogical choices. We did not pre-determine the categories because the nature of this study is not to test a predetermined hypothesis. Approaching the analysis through a constructivist paradigm, we chose to collaboratively code and negotiate differences in the coding through discussion, rather than deploy inter-rater reliability. The codes were used to identify themes which were also discussed and negotiated. We augmented the themes with qualitative quotes that provide context and rationale for the pedagogical choices instructors make. Quotes have been lightly edited for readability.

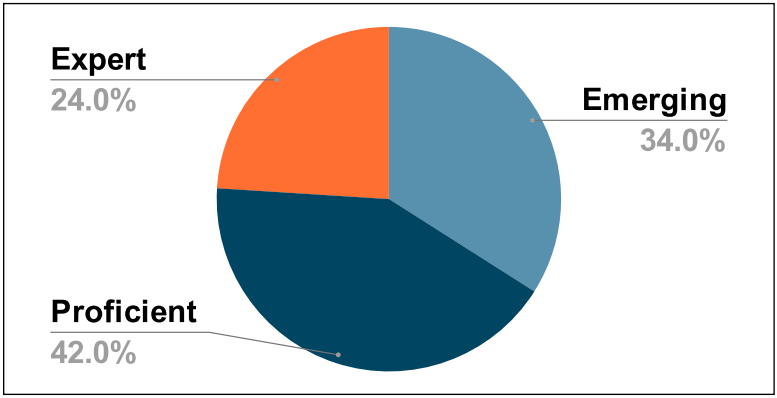
Results

In the following section, we share the results of our study organized into four main categories. The first, Describing UX Expertise and Program Implementation, explores how instructors defined their own UX expertise and how it is implemented in their programs, based on interview and questionnaire data. The second, Describing and Defining UX, presents data from interviews, the questionnaire, and artifacts, showing how instructors defined UX. The third, Course and Program Logistics, provides an overview of the salient characteristics of TPC courses with UX components based on interview data. The fourth, Assignments and Activities, describes what students do in class based on interviews and content analysis of syllabi and assignments. The fifth category, Texts and Materials, reports on what texts instructors assigned to students based on interview data and syllabi analysis.

Describing UX Expertise and Program Implementation

We were interested to understand how TPC instructors categorized their own practice in teaching UX and how they saw it represented in their programs. In the questionnaire, we asked instructors to describe their experience teaching UX by choosing one of three options: emerging—am interested in or just starting to teach UX and feel like I have much to learn; proficient—am teaching UX related topics and feel comfortable in my teaching; or expert—am teaching and iterating multiple UX topics or courses and feel highly confident in my teaching. The results (refer to Figure 1) show out of 64 responses, 17 (24%) rated themselves expert, 21 rated themselves emerging (34%), and 26 rated themselves proficient (42%).

Figure 1. Self-described expertise in UX pedagogy.



We also asked interview participants to reflect on what else they would like to learn about UX pedagogy and their responses provided a range of ways instructors would like to increase their existing knowledge and expertise when it comes to teaching UX. Several instructors mentioned they had limited background or training in UX. Others mentioned wanting to keep up with industry trends. Bringing these two ideas together, participants mentioned they did not feel like they had the embodied understanding of the practice of UX and hoped to find ways to supplement their perceived lack of knowledge.

P22 reflected on their lack of experience with specific UX methods:

> I know that I can talk about them in this scholarly way, but I'd like to do, like, the embodied experience of working with those methods and I think that'll be just like I try to tell students that when you have the embodied experience of giving a poster presentation you'll understand how to do it, I think if I get that kind of experience then I'll be able to supply it to my students.

P6 talked about how the lack of experience led to negative feelings related to their qualifications to teach UX:

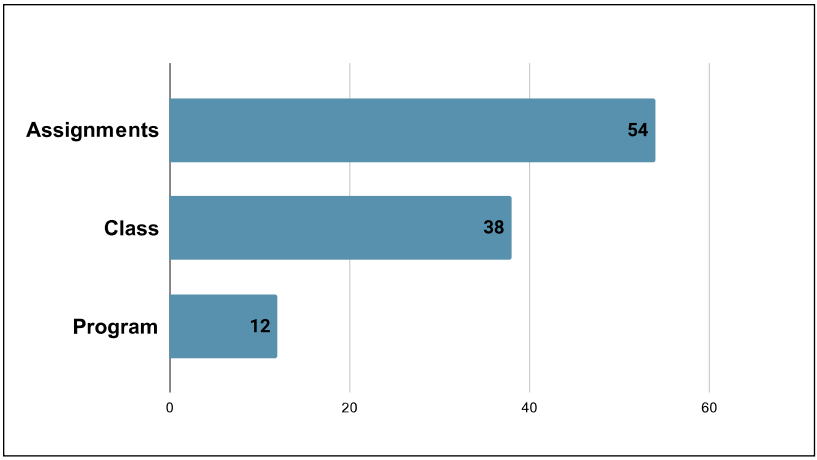
> I never took a class and … I haven't worked as a professional. I have no idea really like I'm not qualified to teach this so there's that, but then there's also like there's also both blessing and curse of how diffuse UX is our campus.

Other participants mentioned that they planned to or were in the process of taking online courses or other supplemental training to learn about UX. Still other participants stated that they wanted more community around UX pedagogy to discuss their practices and also access to share and use UX resources like lesson plans, assignments, and syllabi.

In addition to asking participants about their UX pedagogy expertise, we also asked them to assess how UX was integrated into their programs. In the questionnaire, we gave them three options and asked them to check all that apply. The options were: 1) teach elements of UX within specific assignments, which we called *assignments*; 2) teach a class dedicated to the end to end process of UX, which we called *class*; 3) teach in a program where UX is scaffolded across the entire program, which we called *program*. Of the 82 participants who completed the questionnaire, 62 answered this question. Figures 2, 3, and 4 below show how participants answered this question. When looking at all the responses to the check all that apply question (Figure 2), we found the most common answer was

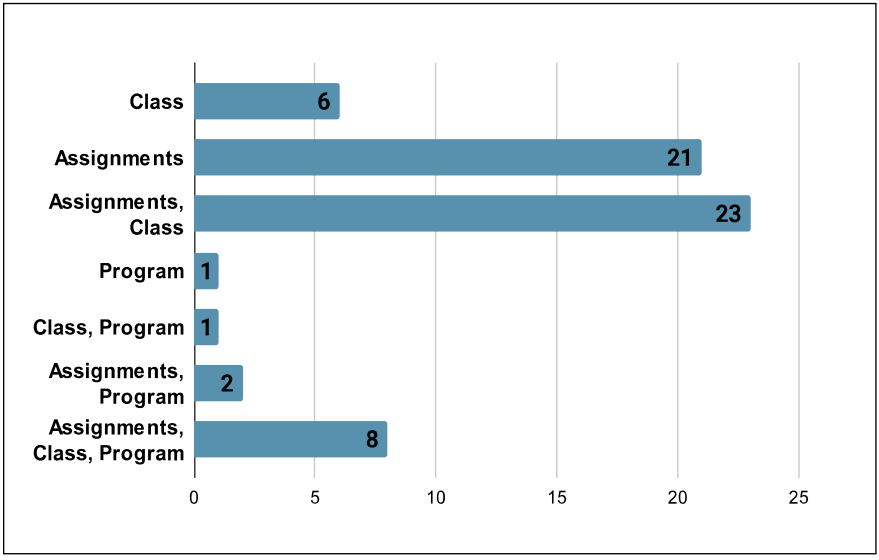
assignments with 54 selections, followed by class with 38 selections, and finally program with 12 selections.

Figure 2. UX teaching present in assignments, classes, and programs, in aggregate.



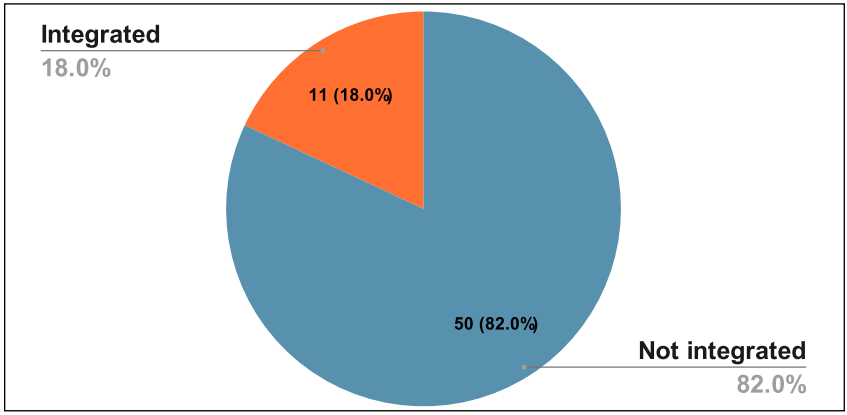
However, when looking at the individual responses to this question (Figure 3), we found most participants integrate UX either into an assignment (n=21), a class (n=6), or both (n=23). Having UX integrated fully into a program was chosen less frequently; participants selected program (n=1), class and program (n=1), assignments and program (n=2), or it is fully integrated into assignments, classes, program (n=8).

Figure 3. UX teaching present in assignments, classes, and programs, by response.



When looking closer at responses, we wanted to understand how many responses indicated that UX was integrated into the program (refer to Figure 4). We categorized the responses into two broad categories: responses that focus solely on UX at the assignment or class level were labeled not integrated (n=50, 82%), and responses that did include any indication of program integration were labeled as integrated (n=11, 18%).

Figure 4. UX program integration



This data suggests that most instructors who completed the questionnaire taught in programs that did not fully integrate UX into course offerings.

Describing and Defining UX for Students in TPC courses

When recruiting participants and designing an intake questionnaire, we developed a working definition of UX to be able to communicate what types of pedagogical activities and instructors we were investigating. As mentioned earlier, we used a definition based on Buley (2013) that includes three components: UX is a professional practice, a process, and an outcome. We provided a version of this definition in the preamble to the questionnaire to work as a screening criteria. It read:

> For the purpose of this project, we subscribe to Buley's definition (2013) of user experience: a professional practice: a set of methods and techniques for researching what users want and need, and to design products and services for them, an outcome: the overall effect created by the interactions and perceptions that someone has when using a product or service, interdisciplinary: includes visual design, content strategy, writing, business analysis,

product management, project management, analytics, and engineering. Given this definition and your understanding of UX, do you teach aspects of user experience in any of your courses?

Out of the 82 participants who completed the questionnaire, 73 (89%) responded yes, 2 (2%) responded no, and 7 (9%) did not respond. However, we were also interested in how instructors defined UX for their students.

How instructors define UX for their students. We asked participants who completed the questionnaire to respond to the question "How do you define and describe UX for your students?" in an open-ended text box and 54 (68%) participants responded. Their responses were compiled and categorized across three qualitative codes: outcome, process, and field (refer to Table 2). Responses that described the overall effect created by the interactions and perceptions that people have when using a product or service were coded as *outcome* (n=34/54, 63%). Responses that described an iterative and/or flexible set of methods and techniques for researching what users want and need to design products, services, and experiences were coded as *process* (n=35/54, 65%). Responses that described interdisciplinary professional practices and/or fields informed by a variety of disciplines were coded as *field* (n=10/54, 19%). A small number of responses (n=3/54, 5%) did not describe or define UX and were coded *N/A*. These results show references to processes and/or outcomes are present in a near equal majority of UX definitions within our sample, while references to disciplines or fields are present, but less frequent.

Table 2. Codes and example descriptions of UX

Code	Description of code	Example response	%
Outcome	References the overall effect created by the interactions and perceptions that someone has when using a product or service.	"The positive, negative and/or neutral experience(s) of interacting with a product. These factors are subjective and often emotional, psychological, and, sometimes, tactical. Positive user experiences are useful, usable and desirable."	34/54 (63%)

Process	References an iterative and/or flexible set of methods and techniques for researching what users want and need in order to design products, services, and experiences.	"Data-driven, inclusive research & design process that implements and adapts methods for connecting stakeholders, designers, and designs."	35/54 (65%)
Field	References interdisciplinary professional practice and field informed by a variety of disciplines.	"I am careful to differentiate between usability and UX when talking about user experience. Just because something is usable doesn't mean it is a positive user experience. I have also touched on design thinking and Experience Architecture when talking about UX."	10/54 (19%)
N/a	N/a	"Honestly, I am not sure that I do. We discuss (and practice, when possible) usability testing in an introductory tech writing course, but that is it."	3/54 (5%)

However, when analyzing the questionnaire responses, we found that participants would also describe multiple aspects of UX in relation to each other. Specifically, after calculating the percentage of our codes across the questionnaire subset, coded responses were analyzed to determine what parts of the definition co-occur.

A large segment of our sample (n=27/54) described UX in a singular manner: as an outcome only (n=14) or as a process only (n=13). An equally large segment of our sample (n=27/54) described UX in multiple, co-occurring ways: as an outcome and a process (n=14), as a process and an interdisciplinary field (2), or as an outcome and an interdisciplinary field (2). Only a few responses (n=6) described UX as an outcome, process, and field. These results show definitions within our sample rarely reference an interdisciplinary field(s) of study when describing UX to students. Most frequently, definitions within our sample reference UX as an outcome or design process separately, or reference together the overall effects of product use and iterative

methods of design when describing UX to students (refer to Table 3 below). While a few responses contain all three codes—the outcomes, processes, and fields of UX—these co-occurrences are less frequent.

Table 3. Co-occurrence example responses

Code	Example response	%
Outcome and process	"We spend a long time defining UX, but if a nutshell is necessary: UX is the degree to which humans enjoy interacting with products. Designers must learn about human needs and wants in relation to an artifact, iteratively produce those artifacts, and measure the ability of artifacts to meet human wants and needs."	14/54 (26%)
Process and field	"I teach UX from a user research and usability testing perspective. So, I teach UX research methods rather than design (others do that)."	2/54 (4%)
Outcome and field	"I use NNGs definition: 'User experience' encompasses all aspects of the end-user's interaction with the company, its services, and its products. The first requirement for an exemplary user experience is to meet the exact needs of the customer, without fuss or bother. Next comes simplicity and elegance that produce products that are a joy to own, a joy to use. True user experience goes far beyond giving customers what they say they want or provide checklist features. To achieve high-quality user experience in a company's offerings there must be a seamless merging of the services of multiple disciplines, including engineering, marketing, graphical and industrial design, and interface design."	2/54 (4%)
Outcome, process, and field	"I use Roto et al.'s (2011) definition: 'The field of UX deals with studying, designing for and evaluating the experiences that people have through the use of (or encounter with) a system. This use takes place in a specific context, which has an impact on, or contributes to, the UX. UX can be viewed from different perspectives: it can be seen as a phenomenon, as a field of study, or as a practice. To understand this distinction, consider the following analogy: health as a phenomenon, medicine as a field of study, and a doctor's work as a practice.'"	6/54 (11%)

How instructors use terms related to UX in their teaching artifacts. In addition to the self-described definitions that respondents provided in the questionnaire, we also conducted a computer assisted corpus search through all the submitted teaching artifacts (n=53) for the terms *user experience* or *UX* to triangulate how frequently these terms occur. Because a computer assisted corpus search does not use Boolean logic, we needed to conduct a separate search for the exact terms. *User experience* was present in 25/53 artifacts and UX was present in 21/52 artifacts.

Some participants seemed to conflate the term *UX* and *usability testing* in their questionnaire responses and their interviews. Although we distinguish UX from usability testing, we were curious to find out if our participants also used UX and usability testing interchangeably in their artifacts. As a result, we also searched for the term *usability. Usability* was present in 31/53 artifacts. *Usability* and *user experience* co-occurred in 18/53 artifacts. *Usability*, without the term *user experience*, was in 13/53 artifacts. *User experience*, without the term *usability*, was found in 7/53 artifacts. By conducting this analysis, we were able to determine the explicit presence of *UX* within our sample. The teaching artifact corpus contained 49,628 total word tokens. The results are shown in Table 4.

In the corpus analysis, we identified the most common words as *class* (n=651), *course* (n=635), *students* (n=474), *work* (n=459), and *design* (n=403). The key words of interest to this study related to UX, (e.g., *usability* [n=273]*, user experience* [n=86]*, UX* [n=358]) occur less frequently than the most common words. To evaluate the drastic difference in frequency between terms *user experience* (n=86) and its acronym *UX* (n=358), we looked at the context of use in individual artifacts within the corpus and found that *UX* is used in titles of recommended or required readings, which we discuss at length in a later section.

Table 4. UX-related keyword search in the teaching artifact corpus.

Keywords	Word Frequency	Appears in # of artifacts
class[a]	651	34/53
course[a]	635	34/53
students[a]	474	27/53
work[a]	459	39/53
design[a]	403	38/53

ux	358	21/53
usability	273	31/53
user experience	86	21/53

[a]These terms are the most frequent or common in the corpus.

Course and Program Logistics

The second research question asks what structures or constraints influence UX pedagogical choices. This section presents an overview of the salient characteristics of TPC courses with UX components based on data from 22 semi-structured artifact-based interviews with TPC instructors who self-identify as teaching UX.

After presenting an artifact that represents their approach to teaching UX, interview participants were asked follow-up questions about the program and course context of their artifact. The types of programs where these courses are taught are mostly discipline-specific departments including traditional English departments (n=14), a communication department (n=1) and a stand-alone writing department (n=1). Other participants described their programs as interdisciplinary college-level units (n=5) and as an extension program geared toward working professionals (n=1). For participants, programmatic locations presented some benefits such as cross-college or institutional collaboration. P3 reflected on the ways programs collaborate to supplement different aspects of UX content:

> The program allows people to take some elective courses that are coming out of [redacted], a different department, the art department there's courses, you can take specifically -- their electives -- on user interface design and then some tools-based courses in the Adobe suite.

However, many participants described tensions related to their location in a program, including disciplinary siloing and being housed within a traditional English Department. P16 reflects on institutional realities of UX as a multidisciplinary field: "And then there's the cross-institutional tensions regarding who owns it [UX] and where it should be."

P15 discusses the newness of UX concepts for English majors:

> So, concept of a user versus a read that's when I have to actually spend time or I took for granted. But it's only really since I've been at [university] that I have so many literature or traditional English majors. They have not though about users in any way...[In the] Writing for the Web [course] creative writers honestly come in and many of them think

> we're going to write blogs and that'll be the semester. So they're familiar with the genre of the web, but in terms of the larger picture of how the Web works, how you compose content, and how you evaluate content, that is all new.

Results show courses were primarily offered at the undergraduate level (n=13), one of which was a capstone course. There were also some at the graduate level (n=3), and several were cross listed across graduate and undergraduate (n=4). Of the 22 courses, 12 were required, 6 were electives and for the 4 remaining courses, it was unclear.

A majority of the courses (n=12) described by our participants were stand-alone UX courses, while advanced technical communication courses (n=4), service courses (n=5), and general education courses (n=2) were also present. Although two participants mentioned a sequence of stand-alone UX courses, most participants discussed fitting UX into one class and even one assignment. P15 discusses the amount of preparation needed to guide students: "I feel like there's so much scaffolding that goes into UX to do it well, that I am not able to do that when it's like a one-shot course."

Class sizes tended to be small (25 or fewer students) with one outlier of a 100-student course that fulfills a general education requirement for undergraduates. The smallest class (10 students) was a graduate level course. The average class size was 24.9, with a standard deviation of 23.25.

TPC classes within our sample varied widely in title and focus. Our participants described the titles or subjects of their classes (some participants referenced multiple courses within an interview) as Applied Design (n=1), Experience Architecture (n=1), Human Computer Interaction (n=1), Innovation and Impact (n=1), Introduction to Technical Writing and Professional Communication (n=5), Project Management (n=1), Rhetoric as User Experience Design (n=1), Research Methods (n=1), Usability and/or Usability Testing (n=2), User-Centered Design (n=3), User Experience (n=2), User Experience Research (n=2), User Experience Writing (n=1), and Writing for the Web (n=1).

Assignments and Activities

In this section, we provide an overview of what students are asked to do as part of their class. This is organized into four sections. The first two sections, Research and Defining and Designing, were derived from interview data (n=22). The next category, Genres/Reports, were

identified through assignment and syllabi analysis (n=53). The last category, Projects, were identified through interview data (n=22). The final category, Texts, describes what textbooks and materials are assigned and are derived from both syllabi analysis and interview data.

Research. We categorized research activities into two subcategories (refer to Table 5). The first subcategory, understanding the audience, was defined as activities that help students gain a better understanding of the audience they are designing for, their needs, and any requirements that need to be accounted for in the design. These activities were identified in 19/22 or 86% of instructor interviews. Several instructors mentioned that students do one or more activities and several mentioned that students are given a choice of which activity to engage in based on the project. The most common type of activity in this category is user interviews (n=12), followed by surveys (n=5), and heuristic evaluations (n=3). The second subcategory is Evaluating the Design, and these activities were identified in 17/22 or 77% of instructor interviews. The most common type of activity in this category is usability testing (n=10) and then critique or feedback from an expert, instructor, or peer. Taken together, these two categories show the range of diverse activities that students engage in during UX-focused courses in TPC.

Table 5. Types of research activities

Subcategory	**Understanding audience**	**Evaluating design**
Occurrence in instructors' interviews	n=19/22, 86%	n=17/22, 77%
Specific activities mentioned	User interviews - 12 Surveys - 5 Heuristic evaluations - 3 Competitor analysis - 3 Rhetorical analysis - 2 Stakeholder interviews - 1 Web analytics - 1 Content analysis - 1 User observation - 1 Strengths, Weakness, Opportunities, Threats (SWOT) - 1 Return on investment (ROI) - 1 Online user research - 1 Diary study - 1 Archival research - 1	Usability testing - 10 Critique or feedback (expert, instructor, peer) - 3 Type not specified - 2 Client feedback - 1 Surveys - 1

Defining and designing. In this section, we present activities related to defining audience and designing (refer to Table 6). The first subcategory is defining audience and requirements, which refers to activities where students are articulating their understanding of who they are designing for and what the design needs to do. These activities were identified in 15/22 interviews (79%). The most common activity is personas (n=11), followed by research reports (n=4), and then specifications and scoping documents (n=3), and scenarios or user stories (n=3). The second subcategory is designing, which includes activities related to creating content and designing information. In this subcategory, the most common activities are prototyping (n=9), wireframes (n=4), and drafting content (n=2).

Table 6. Activities related to defining audience and designing

Category	**Defining audience**	**Designing**
Occurrence in instructors' interviews	n=15/22, 79%	n=18/22, 82%
Specific activities mentioned	Personas - 11 Research report - 4 Specifications or scoping document - 3 Scenarios or user stories - 3 Journey maps - 2 Content audit - 1	Prototype - 9 Wireframe - 4 Drafting content - 2 Design rationales - 1 Storyboard - 1

Assignments and projects. During the interview we asked instructors to explain the assignments or projects that included elements of UX. There were wide variations in the kinds of projects participants designed within their courses such as creating new products, designing and testing graphical user interfaces (GUIs), drafting and testing instructions and/or procedures, redesigning existing products, and drafting UX writing or microcopy. The subject matter of such assignments also varied widely including content related to anti-child trafficking, information technology services, injury prevention, municipal events, scientific outreach programs, sexual

misconduct, sustainability, and many more student-selected subjects.

Across the 22 instructors, we categorized the types of projects in several ways.

- Client- or community-based project: a project that focused on working with a client or partner (n=8). Out of these projects, 4 were partnerships with on campus units and 4 were with off-campus organizations.
- Real-world projects: a project that focused on designing for a realistic situation, genre, circumstance, or audience (n=11).
- Hypothetical projects: a project that engages in an imagined circumstance that was designed primarily as an opportunity for learning (n=10).
- Student choice of topic: students choose the topic or idea for the focus on the project (n=12).
- Instructor-directed topic: instructors choose or direct the student to a specific topic (n=10).

A clear differentiation in the type of projects students were asked to do were the ones that engaged with a client on a real-world project. For those instructors who chose this type of project, the client-based aspect was key to their pedagogy. As one participant (P22) stated on the important of these types of projects:

> I wanted my students to experience that vagueness...all those things that are unknown and uncontrollable. And I wanted them to experience working with the user that they don't know necessarily. I haven't vetted and I haven't brought in, and I don't have all the controls around the scenario, and I wanted my students to be able to engage with that. ...still like in a low stakes way and still being very much guided through right, rather than just throwing them in there, so I was trying to find that balance between giving them an actual experience with users that they didn't know and still keeping it guided learning process.

We also saw instructors choose individual projects versus team projects. Out of 22 instructors:

- Individual projects - n=5
- Team projects - n=15 instructors currently used team projects prior to the disruption of the pandemic (3 instructors switched from team to individual projects during COVID)
- Student choice - n=1 instructor provided students with the option of team or individual
- Unclear - n=1

In addition to the types of projects, several instructors talked about

the importance of learning a process and working in collaboration with others as more important than the final product. As one participant (P1) stated:

> Because I have taught this many times I also really firmly believe that the process is just as important as the product. So if they create a really great product, but they've thrown everyone under the bus along the way, that's not acceptable for me in this class. I'd rather you have this really great process and to bring people along there together, but then maybe ultimately the product that came out of it was not as great as it could be, than if you maybe had more time or something.

Further, several mentions the role and importance of iteration and being able to have students experience that process. As one participant (P15) said:

> Different than even the writing process, which is like multiple drafts. They might know that but it [UX] is such an iterative process that they're not used to thinking of projects that take more time than 'Oh I have a paper due I'll write it the night before.' So I spend a lot of time...I don't know if it's project management or just orienting them to a different way in which the deliverables are created.

Texts and Materials

We asked interview participants what readings, texts, or learning materials they assign in their classes. While many assign textbooks, they almost all mentioned also assigning materials and sources from blogs, videos, and academic articles. Similarly to variation found in course titles, there is considerable variation in the texts that instructors assign (refer to Table 7, next page). All titles appearing were mentioned by one participant, with the exception of two titles (Norman, 2013; Barnum, 2010) which were each mentioned by three participants, and one title (Buley, 2012) which was mentioned twice.

Table 7. Book titles assigned by instructors, organized by topic

Topic	Title
Content and writing	Metts, M. & Welfie, A. (2020) *Writing is Designing: Words and the User Experience.* New York: Rosenfeld Media. Podmajersky, T. (2019) *Strategic Writing for UX: Drive Engagement, Conversation, and Retention with Every Word*. Boston: O'Reilly Media. Redish, J. (2012). *Letting Go of the Words: Writing Web Content that Works*. Netherlands: Elsevier Science. Wolfe, J. (2010). *Team Writing: A Guide to Working in Groups*. United States: Bedford/St. Martin's.
Project management	Watt, A. (2014) *Project Management.* BCcampus. https://opentextbc.ca/projectmanagement/
Design	Garrett, J. J. (2010). *Elements of User Experience: The User-Centered Design for the Web and Beyond.* Berkeley, CA: New Riders. Johnson, R. R. (1998). *User-centered technology: A rhetorical theory for computers and other mundane artifacts.* United States: State University of New York Press. Norman, D. (2013). *The Design of Everyday Things: Revised and Expanded Edition*. United States: Basic Books. Williams, R. (2015). *The Non-designer's Design Book: Design and Typographic Principles for the Visual Novice.* United Kingdom: Peachpit Press.
Research	Barnum, C. M. (2010). *Usability Testing Essentials: Ready, Set...Test!.* Netherlands: Elsevier Science. Portigal, S. (2013). *Interviewing Users: How to Uncover Compelling Insights.* United States: Rosenfeld Media.

UX Process	Field Guide for Equity Centered Community Design-Creative Reaction Lab. https://www.creativereactionlab.com/shop/p/field-guide-equity-centered-community-design Buley, L. (2013). *The User Experience Team of One: A Research and Design Survival Guide.* United States: Rosenfeld Media. Mara, A. (2020). *UX on the Go: A Flexible Guide to User Experience Design.* United Kingdom: Routledge. Still, B., & Crane, K. (2017). *Fundamentals of User-Centered Design: A Practical Approach.* United States: CRC Press.
Technical Communication	Lannon, J. and Gurak, L. (2020). *Technical Communication* (15th Edition). New York: Pearson. Johnson-Sheehan, R. (2017). *Technical Communication Strategies for Today* (3rd Edition). New York: Pearson

These different texts can be categorized into academic or industry texts, with instructors assigning more industry texts than academic texts (refer to Table 8).

Table 8. Types of texts assigned

Category	Number	Text
UX industry texts/ how-to	10	Barnum (2010), Buley (2013), Garrett (2010), Field Guide for ECCD, Metts & Welfie (2020), Norman (2013), Podmajersky (2019), Portigal (2013), Redish (2012), Williams (2015),
Textbooks or academic text	7	Lannon & Gurak (2020), Johnson (1998), Johnson-Sheehan (2017), Mara (2020), Still & Crane (2017), Wolfe, (2010), Watt (2014)

Limitations

There are several limitations to this study. First, all participants self-selected for the study, so while the data helps us understand the context and practice of instructors, it does not substitute for

a programmatic, field-wide study. Second, TPC and UX are global professions and fields, but our sample primarily represented views of TPC instructors in the United States. Although some of our participants (n=2) spoke about TPC courses outside of the United States, most (n=20) discussed courses within the US. Third, the interviews were conducted in February-April of 2021 where most instructors were grappling with changes to their typical practice due to COVID 19 and the move to emergency remote teaching. This complicated our data analysis in some cases, because instructors provided insights about what they did "before COVID" and what changes were due to the demands of the pandemic considerations. The focus of this article is not on the issues related to COVID's impact on teaching. However, we acknowledge that the shift to online teaching may have led to instructors being in a heightened state of awareness of their pedagogical choices due to the pandemic. Fourth, analysis of teaching artifacts through keyword searches only shows presence or absence of explicit terms and does not account for implicit or contextual presence.

Discussion

The purpose of this research is to investigate the pedagogical approaches and practices of TPC instructors who teach UX in order to document a fuller picture of curricular practice. By examining questionnaire responses, interview transcripts, and teaching artifacts we sketch a picture of how TPC instructors approach teaching UX. Data from this study can improve program outcomes, make arguments for faculty desiring additional training, and help hire qualified faculty to teach UX and TPC courses, etc. Usability and UX have changed significantly in recent years. There is a lot to know, and programs need to think about both how to better incorporate UX, and also how to build and maintain expertise. These are programmatic concerns that our study seeks to address. In this section, we return to our research questions and discuss how the data presented in the findings helped us learn more about UX pedagogy by TPC instructors.

1. What do TPC teachers do when they say they teach UX? What are their definitions, approaches, and activities?
2. What are the structures or constraints that influence UX pedagogical choices?

Variety and Flexibility of Teaching Practices

There is a broad range of strategies and approaches for teaching UX in TPC. These strategies are both enabled and constrained by programmatic commitments, individual motivations, and local

considerations. Given these factors, TPC instructors make a wide range of choices of how they incorporate UX into their courses, which is evident in how they define UX and implement it in their class through texts, assignments, and activities. Our first research question asks: What do TPC teachers do when they say they teach UX? What are their definitions, approaches, and activities? The findings provide a great deal of information to answer that question. Here we step back to discuss the implications of the variety and flexibility in the practice of teaching UX by instructors who align themselves with the field of TPC.

Definitions vary and point to a nascent field and practice. While the vast majority of participants to the questionnaire affirm they teach UX according to our definition, how they define UX for students varies. Some draw from specific definitions from the literature, others include components of a process, practice, or field, and yet others include a more narrow definition that touches on one aspect of UX. However, this phenomenon is not unique to instructors in UX. The discussion of what UX is and how to define it is not new.

Buley observes that defining UX is famously messy. As she states, "Talking about user experience (UX) can be a bit like looking at an inkblot test: whatever matters the most to you ends up being what you see" (2013 p. 4). This can be attributed to UX's relative youth as a field and practice, but it goes deeper. Law et al. (2009) name three factors that makes a universal definition of UX challenging. First, UX is associated with a broad range of variables that are included or excluded depending on the context and person doing the defining. Second, the unit of analysis within UX is malleable. Third, the landscape of UX research is fragmented and complicated by diverse theoretical models. In addition, Law, et al. (2009) argue that having a universal definition of UX is helpful for several reasons, importantly for this discussion, because it will help to teach UX with the "fundamental understanding of its nature and scope" (p. 720) While we agree that definitional work is important to UX, we do not argue that there is one universal definition of UX. Instead, we believe that TPC practitioners are well equipped to understand and describe UX work within our own disciplinary frame. It would be helpful to define and clearly articulate how the field of TPC is one of many that actively study UX and are involved in various aspects of any UX process. Communicating direct connections from TPC knowledge-making practices, theoretical frameworks, and professional competencies to UX as a field, process, and an outcome benefits programs, instructors, and students.

For TPC programs who want to emphasize or heighten their

connections to UX, having a clear and cohesive frame would be a helpful step in articulation. They can then scaffold this framing across courses and programs. Instructors within these programs can co-create this identity and can locate themselves as a part of a highly distributed network of learning, instead of the sole UX generalist, responsible for teaching all aspects of UX. As a result, instructors can shift their focus from teaching every part of UX and instead make TPC's place within the fields of UX visible to students. When instructors make these disciplinary positions visible, students can gain a meta-awareness of the broad range of what UX is and what it can be.

How UX does (and does not) show up in titles, assignments, and texts. When looking at how instructors incorporate UX in their teaching, we found they do all kinds of things, ranging from a sole assignment such as an instruction set with a usability test to a full UX process that includes highly complex and scaffolded, client-based projects. Further, some instructors explicitly use terms like UX and usability in their assignments, courses, and texts they select and others do not and instead embed UX activities into activities or courses with other names. We again see a wide range of activities and assignments that instructors consider related to UX.

At first blush, these disparate examples can seem overwhelming for instructors or programs considering their own approaches. However, we see the examples of variations as productive. They demonstrate how widely applicable UX concepts are to subjects in TPC courses and how they can be applied in a host of ways for students to gain knowledge in these areas. We are not advocating a one-size fits all approach to UX in TPC. That would be undesirable and also unlikely given the constraints at the program or institution level. We instead argue that UX can be embedded across a TPC curriculum in a strategic way. To do so, we again advocate for providing a clear framing of UX for students and connecting the definition to objectives and activities in coursework and across the program. There is no one size fits all solution for the connection between UX and TPC. It is highly situated and influenced by the localized conditions within the program, institution, geographic region, and local professional communities.

Structures or Constraints that Influence UX Pedagogical Choices

Our second research question asked what structures or constraints influence UX pedagogical choices. When triangulating the results of our questionnaire, interviews, and artifacts, we identified many localized constraints that have their own nuances but cluster around

two distinct challenges: UX programs of one and the durability of usability.

UX programs of one. Within our sample, instructors' expertise and institutional context both structured and constrained their pedagogical choices. Participants in our study rated their expertise across a spectrum of emerging, proficient, and expert, the majority indicated they were emerging or proficient. Many expressed a lack of confidence or uncertainty around teaching UX, echoing Chong (2017) that graduate programs do not adequately prepare students to teach usability, in her case, or UX, in this case. In addition, academic programs can be slow to change and often do not keep up with the faster changes in industry.

Most participants taught in programs (a majority being traditional English departments) where UX was only present in an assignment or a stand-alone course. Instructors use course titles, textbooks, and artifacts that may not include the term UX or User Experience making it difficult for these instructors to be identified as teachers of UX. The vast majority of participants in our study stated that UX was not embedded within the program but rather solely attended to at the assignment or class level. When UX topics are embedded at the assignment or course level, they lack visibility and a larger presence in a program. Individuals can be responsible for the assignment or class level implementations, but a lack of programmatic focus can lead to what feels like a one off or less focused treatment. As Zhou (2014) points out in his critique of the sole usability course, we need more of a programmatic approach to design and evaluation.

These factors contribute to making the instruction of UX within TPC a frequently unacknowledged and solo endeavor or as Buley calls it in her book of the same name a *UX team of one*. Although Buley is referring to UX practitioners, many of the challenges she identifies also surfaced across our dataset. First, instructors teach within institutional contexts that, at best, value UX but do not offer support to sustain a robust program or, at worst, see UX outside of the purview of their programs/belonging to other programs. At other end of this spectrum, instructors have to navigate challenges to have their expertise acknowledged and valued or to join communities of practice. Etienne Wenger (1999) and Etienne Wenger et. al. (2002) argue that communities of practice encourage a shared repertoire and mutual engagement. Second, instructors teach a variety of UX content (research, design, writing, testing) but frequently question if they ***are*** teaching UX or if they are qualified to teach UX. Participants described challenges in supplementing their own learning while

working (teaching), wanting to keep up with industry trends, wanting to integrate relevant texts and activities, and the self-identified need to take online courses or training. While some of our participants relied on typified genre exercises like writing instructions for peanut butter and jelly sandwiches, many instructors had rhetorically rich and integrated UX curricula but did not always identify or name their work as such. The dissonance between our participants' self-described expertise level and their teaching practices suggests the solitary nature of the work, a lack of confidence, and shows lack of community around the practice. Instructors are not naming and claiming their expertise for students or themselves. Again, this is complicated by the lack of visibility of UX within the program. Without having UX scaffolded across a program, these instructors become ad-hoc administrators, making visible curricular paths where few existed before. As a result, programmatic gaps become the individual responsibility of TPC instructors.

The durability of "little u" usability. The purpose of this research was to understand how TPC instructors approach UX pedagogy. However, "little u" *usability* (an evaluation method of UX) permeated our sample even though our consent forms, questionnaire, interview protocols, and requests for teaching artifacts only asked about UX. After reading a preamble that provided a definition of UX, participants had to self-identify that they taught UX as described in that definition. Although some participants were able to place usability as a method within a longer UX process ("Big U" usability), many participants conflated the two terms, using them interchangeably or only using *usability*. In these cases, we asked follow-up questions about the relationship between usability and UX, and participants frequently responded that they had never distinguished between the two or were sometimes unsure that there was a difference.

The results presented in this article suggest that instructors within our sample may not always be explicit with themselves or students that they are teaching usability as a part of UX, and in some cases might often be teaching usability alone. The traces of TPCs historical past with usability are durable; part of this is due to the fact that teachers are teaching usability testing as a method, not as a part of a larger design process. As a result, while instructor focus on "little u" usability alone has remained, the processes before and after usability testing have dramatically changed. Such durability frequently structured and constrained participants' UX pedagogies. For example, when asked to share a teaching artifact that represents their approach to UX, many participants shared instruction set assignments. In some

cases, these assignments did ask students to engage with usability as a part of a more complex UX process (e.g., conduct user research beforehand and design based on that research; test and iterate the instructions based on the test findings). However, more instruction set and usability assignments became a stand-alone exercise in genre and style (e.g. write instructions on how to make a peanut butter and jelly sandwich and do a self-study). When writing about the pedagogy of usability, Chong (2016, 2018) and Zhou (2014) identified that TPC courses with usability components need to move beyond "arhetorical" exercises that make usability the sole focus and instead consider iterative and user-centered processes.

Conclusion and Implications

Our impetus for this research was to respond to the call for more scholarship on UX pedagogy in TPC and help to bridge the gap between individual practice and programmatic insights to develop a better sense of what TPC instructors do when they say they teach UX. The data from the study provides insight into the variability of teaching practices related to UX in TPC and the tensions that result from that variability. One tension we see from this study is expertise: instructors shared sophisticated curriculum and teaching practices related to UX, however, just as many instructors felt a lack of preparation and support. Another tension is the value of UX: while TPC programs acknowledge the importance and value of UX, many individual instructors are solely responsible for teaching UX, either as an assignment or class, which is not scaffolded and incorporated throughout their program. We acknowledge the contextual circumstances that activate these tensions. UX as a field and profession continues to grow in popularity and is recognizable to students as a potential pathway to a career. Due to its interdisciplinarity, UX is claimed by many fields and many departments or programs on one campus. These tensions and circumstances ask us to consider what unique role TPC has to play in this context. These findings have implications for programs to consider a more robust and systematic approach to UX within TPC.

The data captured in this study show a rich and complex set of pedagogical practices, many of which are not a radical departure from what instructors do in many TPC programs. Client based projects, audience analysis, design, iteration, and usability evaluation are common and recognizable activities in TPC. However, we see that many instructors and the programs they reside in are hesitant to name and claim what they do as UX. We see an opportunity for TPC

programs to take a more committed stance and approach to UX.

First, by naming the activities related to UX *as* UX, instructors can help to draw attention to students to expand their understanding of what TPC is. Just as Lauer and Brumberger (2016) demonstrated in their job posting analysis, we can see that the discrete tasks, skills, and activities we teach in TPC overlap with UX. However, that understanding may not be clear to students. The skills and concepts students learn in TPC courses are UX, but we need to name them as such. Second, TPC programs would benefit from more explicitly naming courses and programs in ways that are recognizable to both students and future employers alike. Third, naming our interest in UX as a field allows TPC to continue to grow and occupy space in the competitive landscape of UX education.

But naming in name only is not enough, the field of TPC must also claim UX as a central area of expertise and move away from the narrow definition of usability. Claiming UX involves more clearly articulating how TPC has unique contributions to offer the teaching and practice of UX. As evidenced from this research, instructors in TPC bring a unique and nuanced perspective of audience, imbued with rhetorical awareness, and for many, a commitment to social justice. How does TPC frame our approach to UX that is distinguished from other programs such as Human-Computer Interaction or Information Science? What might we bring to interdisciplinary programs that is unique? How do we claim our space?

Rose and Schreiber (2021) ask similar questions, specifically will TPC acquiesce to the other fields who overlap with UX. We say no. Instead TPC programs interested in UX just need to come to terms *with the term* UX and boldly claim our space as educators of the next generation of UX designers with our unique expertise that focuses on people, rhetoric, advocacy, and social justice.

We see the results of this study as the beginning of a broader conversation in the field of TPC. What is unique about TPC's approach to UX? What is the role of UX in the TPC service course? Is the UX process taught in TPC classes? If so, what steps and sequencing are included? How does TPC scholarship describe and define UX? We look forward to continuing and contributing to this conversation.

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Appendix A. Interview questions

Background

1. Tell us your title and where are you situated in your institution (rank/program)? (English dept, stand alone, etc).
2. What do you consider your home discipline or field?

Teaching UX

3. We are interested in learning more about how you teach UX and how it's incorporated in your program.
   - What best describes how UX is taught in your program?
   - UX is incorporated throughout the program (go to program)
   - UX is taught as a specific or standalone class (go to artifact)
   - UX is incorporated into assignments in class or different classes (go to artifact)

Program

4. Tell us more about how UX is integrated throughout the program?
5. What are the defining features of your program?
6. What is your role in your program? Are you involved in making decisions in your program?
7. Where does your program have room for growth?
8. Does your program track alumni? Do you have any data on if students go on to work in the field of UX?

Artifact

9. Can you share an example of an "artifact" that represents how you approach teaching UX. Perhaps a program description, a syllabus, or an assignment
   - Tell me about this class: grad/undergrad, upper level/lower, requirement, how many students?
   - What is this artifact? How does this fit into your class/ program?
   - Step me through how this represents how you teach UX
   - What are your motivations, what influences do you draw on?
   - What challenges or obstacles do you or students face with this particular learning experience?
   - What do you hope that students learn in this ux assignment/course?
   - How do you know if you've successfully taught the topic?

Reflecting on your practice

10. What is most challenging about teaching UX?
11. What is unique about how you teach UX?

12. How would you like to deepen your expertise?
13. There has been an increased focus on inclusive teaching practices in the field. Can you give us some examples of how inclusivity shows up when you teach UX?

Final reflections

14. Stepping back from the specific example you shared, can you talk more broadly about your UX teaching practice.
15. What do you think TPC has to offer over other fields when it comes to teaching UX?
16. What would teaching UX inclusively look like in our field?
17. Is there anything else you would like to share with us?
18. Do you have any questions for us about this research or things you'd like to learn more about?

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