Teaching UX: Designing Programs to Train the Next Generation of UX Experts

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ABSTRACT
This experience report describes core values and approaches to teaching and developing programs in User Experience (UX). What binds these values and approaches together is a deep engagement with ongoing trends and best practices in the field of UX over the past several decades. Examples offered are contextually embedded, yet each expression is consistent with underlying core competencies gleaned from a ten-plus year history of teaching and practicing UX design, information architecture and information design, visual rhetoric, ethics, and usability in the technical communication classroom. The best practices we articulate below are applicable in the context of corporate training, team building and preparation, and consulting, in addition to academic contexts.

Categories and Subject Descriptors
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1. INTRODUCTION
Over the past 10 years, User Experience design (UX) has emerged as a recognizable focus for a variety of related practices in technical communication. Understood broadly as a field that spans information architecture and information design; usability, user-centered design, and participatory design; document design, visual design, and ‘big data’ analysis; institutional and intra-office communication, team building, document and project management—UX as a central area of study informs the constantly evolving identity of the technical communicator. As Johnson-Eilola and Selber (2013) argued, we must think of contemporary technical communication as a “problem-solving activity” insofar as contemporary communication problems are subjective, rarely solved permanently, and engaged by multiple actors [1]. The contemporary practice of technical communication thus has much in common with the central practices and core values of UX.

Like the figure of the technical communicator, the rise of the UX expert has heralded a variety of paradigm shifts that impact the place of UX expertise within professional discourse and practice. Once conceived of as the design professional solely responsible for making sure that software was created with users in mind, contemporary UX experts are industry leaders who mobilize empirically data of to design products that are not only usable, but will be used once they are launched. At the same time, however, programs that train future UX professionals are nearly non-existent. Some UX professionals are trained as technical communicators who specialize in UX late in their undergraduate or graduate programs through internships, solitary courses, or intensive and—often self-propelled—study. Some emerge from related disciplines like Human-Computer Interaction (HCI) or Information Technology (IT), fields which arguably focus more on the analytical study, design, and maintenance of Information and Communication Technologies (ICTs) than on the creation of successful user experiences. Many more UX professionals are self-taught, having gotten involved with tech firms as designers, developers, or consultants in the 1990s, when companies first started to value the experiences of their users as important to product development and deployment.

Ultimately, our goal in this brief report is to start a conversation around the development of educational experiences within technical communication programs that could foster the next generation of UX professionals. Interdisciplinary programs in tech comm, in which a variety of skill sets that are central to UX theory and practice converge, are ripe for such development. We begin below by detailing the evolution of the field and professional practice of UX, from its inception as a kind of analytical study of user-centered design principles to its modern day place as both research methodology and deployment of participatory design theories and projects. From there we map the
current state of academic programs in technical communication that feature UX coursework and/or principles. We then discuss the emergence of full programs in UX, focusing on a new major at Michigan State University as a case-in-point. We close by providing implications for the future of such work, including some shifts we see as necessary within the field of technical communication if UX is to fully take root within its borders.

2. Evolution of UX Core Values
One of the first articulations that placed users at the center of the professional practice of design, in 1988 Donald Norman published The Psychology of Everyday Things, or POET as it was nicknamed by design professionals [2]. This title is emblematic of still-operative interests in human psychology amongst user-centered designers. The idea that user-centered design is really the study of the motivated use of discourse hearkens back to rhetorical theorist Kenneth Burke’s interest in revealing motives, which is arguably a major underpinning of rhetorical analysis and practice within technical communication programs, a point we return to later. Norman later retitled his book The Design of Everyday Things, or DOET, and thus reoriented the goals of design as inclusive of a larger audience, one beyond design specialists, psychologists, and technicians [3]. While usability, ergonomics, and behavioral psychology were taking shape as academic fields of interest in the wake of this landmark publication, a decade passed.

2.1 From (Unspoken) System to User
In 1998, ten years after the first appearance of Norman’s book, Robert Johnson published User-Centered Technology [4]. Johnson’s book was a watershed moment in the development of UX, as Johnson named the current-traditional practices of industrial design as system-centered. In a time when computing technologies and devices were largely the provenance of a white-coated scientific priesthood and every computational cycle represented specialist values put to functional use, a system-centered paradigm made much sense. However, with the dawning personal computer revolution bringing access to more and more consumer-level computer users, or “end users” as they would soon be called, a new era of computers and information spaces designed for non-expert users was ushered in.

This turn from system- to user-centered design paradigm is ably retold many places, perhaps none more engaging than in Tracy Kidder’s Soul of a New Machine (2000), which also begins to articulate the late 20th century arrival of technical communication as a professional practice and mapping strategy for showing users how to utilize new computing machines made available during this time [5]. As Dormehl (2012) explained, from the standpoint of design professionals of this era these new machines—first designed, developed, and introduced to market by Wozniak-Jobs—seemed to frivolously spend all their computational power on new interfaces for non-specialist users (e.g. Graphical User Interfaces or GUIs) [6]. Within this context, it was Johnson (1998) who first articulated a concern with interface and activity as user-centered, calling attention to the system-centeredness of existing design and development paradigms, and ushering in a generation of technical communicators who focused as much on usability as they did on software documentation, a focus which has quietly gained traction within the field since IEEE Transactions published its usability-focused special issue in 1989 [4] [7].

2.2 From User to Users
In the late 1990s and early 2000s, information architecture and information design captured the focus of the field of UX, as web-based publication Boxes and Arrows (2001) followed the publication of Jacobson’s Information Design (1999) [8] [9]. While the former provided a forum where practitioners and academics communicated in a timely, open-access manner, the latter took seriously the idea of information science as work key to the digital age. Shortly thereafter, Christina Wodke’s Information Architecture: Blueprints for the Web (2002) first employed personas as a conceptual tool, introducing the consideration of multiple users with possibly divergent goals, purposes, and aims deployed amidst an array of technological artifacts, including but not limited to those present within the World Wide Web [10]. In technical communication, a parallel inquiry has resulted in an interest in multiple communication stakeholders, as evidenced by the recent work of both Johnson-Eilola and Selber (2013) and Michele Simmons (2008) [11]. In both fields, users began to be conceived of as having different levels of commitment, investment, and power in their relationship to technological artifacts.

2.3 From Users to Participants
As Courage and Baxter (2005) argued during the first decade of the 21st century, engaging users and building an audience for product deployment necessitates user participation at all levels of use and design [12]. A product may look good, may be exceedingly useful for a certain demographic, but without engagement of users ‘where they live,’ the product may roll out to total digital silence. Several of the authors of this report receive e-mails on a daily or weekly basis from designers trying desperately to build a constituency for their application, website, or startup, after this selfsame artifact has already been fully developed. It is saddening to see promising new products and projects grind to a screeching halt when developers suddenly realize they have no user base.

As we point out below, from an educational standpoint this shift from user-centered design to participatory design means building relationships with stakeholders ahead of time so that UX trainees can learn engagement from the ground up, by doing it. From a research and development standpoint, however, the new emphasis on participation means doing the same thing within industry while projects are still in their infancy. Only by recruiting participants for user tests, getting buy-in for a new prototype of an existing product, and/or finding skilled designers and interested stakeholders to partner on a new startup or venture, can a potential user experience that could be awe-inspiring become an actual experience that real, live users use to better their lives.

3. Balancing Theory and Practice in UX Program Development
If there is one truism of working in technology-driven fields, it is that those fields are constantly in flux. We can never teach all of the tools our students or trainees need for their future or ongoing careers simply because these tools have not been invented yet. Instead, we must instill in our mentees the notion that technological innovation is not only inevitable, but a positive, kinetic impulse that can propel them forward. Rather than teaching a set of tools or products, learners need to gain an understanding of how to adapt, learn, grow, and most of all, embrace change. Fortunately, the field of technical
communication strongly values such philosophies; they are one of our greatest strengths as a field [13] [14] [15] [16].

This is not to say that any program will succeed if learners are prioritizing theory over practice. A balance between the two is necessary, and teaching tools is an opportunity for students to put theory into practice. It doesn’t necessarily matter if those tools come in commercial packages, open source packages, or in the form of pencils, paper, and post-it notes. It is most important that learners understand that the form, content, and context of the tools they use must match the exigencies of the job at hand. Below we talk about some important contexts for the development of UX learning, including classes, programs, and full-blown degrees.

3.1 A Note about Program Names

Depending on which departments or industries are involved, you may have to negotiate the name of the program you are developing. It is important that the program name translates well to the market you are located in. Otherwise, the program risks looking out of date or out of touch with current best practices. Names with the term “design” or “writing” or “architecture” are all useful, but know that they will indicate a certain skill set and/or mindset to hiring managers. While graduates of a program will have the opportunity to explain their degree names during interview processes, they may never get the opportunity if the hiring manager has already passed up their resume. It is also true that user experience itself is having issues with its own naming conventions [17]. We at the university-level can be of service here by stabilizing these names and giving stronger meaning to them through developing programs that become permanent parts of academic institutions.

3.2 UX Classes and Workshops

The easiest to design and the first step in the development of a full UX program, classes and individual workshops can introduce learners to UX tools broadly or specifically, can foster different learning configurations, and can begin to give a new program traction within an already-existing program. Below we discuss the current state of UX learning within programs in technical communication and provide some heuristics for developing new courses and workshops within these and other established fields and industries.

3.2.1 UX for Undergraduate Students

Currently, only twenty of the seventy-two undergraduate programs in Technical Communication or Professional Writing listed on The Association of Teachers of Technical Writing website have at least one regularly scheduled course in UX [18]. Out of those twenty programs, most have only one course at the undergraduate level, and many of these courses embed UX within another area (e.g. document design, visual rhetoric, or web design). In addition, many programs offer UX as a “special topics” course once every few years. These courses usually fill, but with no follow-up or more advanced course offerings, students who take these single-instance or special topics courses often find themselves interested in a field with good career potential without a way to learn the fundamentals needed for entry level positions in UX.

In order to assist students in overcoming this issue, several programs have begun to form partnerships with academic centers and/or industry-based organizations—partnerships that can provide students additional training through internships or work-study credit. For example, at Iowa State University the undergraduate and graduate programs in Professional Communication have formed a partnership with the User Experience Laboratory, a lab run through the Human Computing Interaction graduate program, and which provides year-round internships for students who are interested in gaining more experience with UX tools and methods.

3.2.2 UX for Graduate Students

At the graduate level, there is a slightly higher concentration of UX offerings within tech comm: twenty of the fifty-eight MA, MS, or graduate certificates in Technical Communication or Professional Writing offer at least one regularly scheduled course in UX [18]. As with undergraduate programs, however, many more of these degrees offer experiences in UX-related topics that are embedded within another, broader topic. This also holds true for the Ph.D. level, where out of twenty-four programs only nine offer Ph.D.-level classes specifically geared toward UX, but again: many more programs offer broader courses (e.g. New Media Writing, Writing for the Web, etc.) that cover aspects of UX. In addition to coursework at the Ph.D. level, there are options (e.g., qualifying exam reading lists, dissertation research topics, etc.) that allow advanced graduate students the opportunity to specialize in UX theory and/or methods beyond coursework. However, it should be noted that these options focus almost exclusively on the theoretical rather than practical aspects of UX work.

3.2.3 UX within Industry

In a 2013 article in a leading software industry publication, Baldwin wrote about the “Rise of the UX Expert” [19]. Within industry-based firms and collaboratives, a variety of UX learning, training, and knowledge-making is going on, from workshops to conferences to paid consulting to actual classes—both in-person and online. A variety of businesses, both large and small, are starting to understand the power of UX for developing products that become part of consumer lifestyles, and for increasing communication across departments that have traditionally been separated, such as IT, marketing, management, and development [20] [21].

In some ways, academia could learn from these types of collaborations, because the goal of them is often to encourage team members within existing organizations to adopt UX as a problem-solving strategy. Here are the heuristics Ivins (2013) recommended, for instance:

- Overview of the Core Areas of UX (User Research, IA, IxD, and Content Strategy)
- UX Problem Solving
- Remembering that We're Always Designing for People, Not Requirements
- Being a Good Listener and Communicator
- Facilitating Collaboration Across a Team [22]

These heuristics are emblematic of the kinds of thinking we have encouraged as UX educators. Like Ivins, we think it important to balance conceptual understanding, tool use, and practice. Developing successful courses in UX means constantly iterating through these different levels of understanding, such as by introducing a UX concept, trying out the concept via an introduction to a specific tool, and using the tool to practice the concept in a way that at least simulates a design context.
In industry partnerships mentioned above, students go beyond this type of situated learning to actually acting as UX designers with real clients. In these situations, clients must enter these relationships with the understanding that student contributions to their organizations will not be at the level of a professional UX consulting firm the organization might hire. Potential clients for these types of interactions should have this explained to them before they agree to work with students, and furthermore clients should certify that they understand they will be expected to also act as mentors to students. The buy-in for prospective clients can be presented—besides the lure of free labor—as the opportunity to create the type of professional that can be of use to not only their organization but to other organizations within their industry. Without consistent, contextualized training, UX expertise will quickly be drained from industries that need it the most.

3.3 Full UX Programs

Despite the relative absence of courses dedicated to UX, as we have mentioned: many technical communication programs provide some measure of coursework about usability, content management, and/or information design. At a minimum, the topic is discussed during classes on technical writing. Over the past few years, with increasing demand for user experience experts, we have also seen a move to update technical communication programs or create new programs focused on this topic. Other programs have created distinct technical tracks that focus on specific aspects of user experience, such as content strategy, information design, and usability [23]. Some programs also have certificate programs that are related to user experience, both at the graduate and undergraduate level [24]. There is also increasing discussion between industry and academia regarding ways to address this increased demand in the future [25].

Tech comm programs dedicated to such innovation have the ability to draw in new majors to their colleges, to create new partnerships with industry professionals, and to help fill a need for a more humanities-focused, technology-savvy workforce. By foregrounding the need to be interdisciplinary, we can build new coursework that draws on skills and knowledge from across the university. In doing so, we can encourage the kind of collaboration necessary to research and build world-class products and services. To prepare students for careers as researchers, analysts, strategists, designers, and developers, however, we will also need to include class experiences that are outside the traditional semester model, including workshops, field trips, design days, “hackathons,” service-learning projects that span multiple semesters, and internships.

3.3.1 Emergence of Degrees in UX

We are just beginning to see the emergence of full-fledged degree programs in user experience. Many of these programs are growing out of existing technical communication and professional writing programs. At Michigan State University, for instance, scholars are launching a new B.A. in Experience Architecture [26]. The program goals’ include instilling the foundations, principles, and best practices of user experience architecture in existing and new majors. A key component of the program includes the ability to build technologies from a humanities-centered perspective. As such, students in the program will work to gain advanced communication and design skills as well as an ability to think critically, analytically, and creatively when confronted with conflicting information or complex problems. Drawing on courses from across the university, the interdisciplinary program includes classes from professional writing, studio design, computer science, and philosophy, and is meant to prepare students for careers that range across software development, user experience architecture, project management, user research, information architecture, content management, interaction design, and web development [27]. All of which are careers in demand with starting salaries around $70,000 in spite of the recent downturn in the economy [19].

4. Conclusion and Implications

In the last few years, several industry leaders have expressed the need for more programs centered on user experience [17]. The field of technical communication has a long tradition of innovating in response to industry trends. Partnering with industry practitioners should be a major goal within the next decade, both to better understand the needs of industry and to influence the trajectory of our professional practices. Partnership goals may include the typical models of internships and service-learning programs, as well as more innovative configurations in which students, scholars, and UX experts collaborate on existing new learning models and projects. Connecting student experiences and academic research projects to industry practitioners and contexts is key to ensuring both learners and professionals enrich their individual knowledge bases as well as their portfolios.

As the UX profession continues to grow and mature it will need qualified practitioners who have been trained in not only the best methods and practices of the field but who also understand how to adapt, learn, and embrace technological innovation. In addition, it will be important for these future practitioners to understand the complexities of humanistic approaches to both technology development and problem solving. Our field’s strengths in information design, project management, and content strategy coupled with our foundation in rhetoric are a strong fit for leading the development of programs that produce professionals capable of creating robust digital projects and services built around exciting new user experiences.

5. REFERENCES


