Identifying New Topics in TC Curricula: Preparing Students for Success in a Changing World

Jan H. Spyridakis

University of Washington
jansp@uw.edu

This entry discusses what topics TC programs could be teaching to technical communication (TC) students to prepare them for success in an increasingly complex world. People today are consumed with technology and its related artefacts, many of which technical communicators help create. Given the nature of these artifacts, the next generation of TC professionals in some regions may include user experience (UX) researchers and designers.

TC programs should continue to teach foundational TC topics such as rhetoric, writing, editing, and design. But to facilitate the changing nature of the TC profession, programs may need to incorporate additional topics in the areas of genres, management and collaboration, design, UX, methods, programming, and tools. Additionally, if programs have not already done so, they should consider integrating real-world projects into their students' educational experiences through internships, and client and service based learning. The addition of the suggested topics will depend on many factors and must be done on a program-by-program basis, guided by the values of program faculty and the climates in which the programs reside.

To investigate what topics could be taught, I reviewed discussions concerning TC program development, surveys of TC program curricula, TC job titles, and core competencies and related skill sets asked of TC graduates.

Discussions of Programmatic Development

In 2000, the Annual Meeting of the Council for Programs in Technical and Scientific Communication (CPTSC) focused on Models for Strategic Program Development. Many attendees at that meeting were prescient concerning what TC students should be studying. Johnson, van Oss, and Tews (2000) concluded that students needed to have expertise in subject matter and product knowledge, authoring tools, and information design, which they detailed to mean "writing, human factors, learning theory, audience analysis, UI design, and usability testing" (p. 5).

Others at the meeting discussed whether TC curricula should become specialized (e.g., LaGrandeur, 2000; Bernhardt, 2000; Rude, 2000). Bernhardt (2000) believed that TC programs should not specialize and "become the multimedia development program or the computer documentation program or the medical literacy program" (p. 7). Rude also noted that curricula were becoming increasingly interdisciplinary, stating that "the sophisticated communicator is able to integrate technology into the process of information management and not just the production process" (p. 14). Kitalong (2000) believed that a natural outgrowth of the TC emphasis on audience analysis and user advocacy was usability testing. Their positions perhaps helped guide some TC programs in the ensuing years as they updated their curricula and considered whether they would become specialized, interdisciplinary, or take on a focus on user advocacy.

Surveys of TC Program Curricula

Since the 2000 CPTSC meeting, two papers in *Technical Communication* (Harner & Rich, 2005; Meloncon & Henschel, 2013) presented the results of surveys of a large number of undergraduate degree programs in TC/TPC. Meloncon & Henschel surveyed 65 programs and found:

- 50 – 57% requiring courses in introduction to the field, basic technical writing, editing, capstone, and internship

- 45% requiring some kind of "web course," with the majority emphasizing web production vs. web writing, multimedia, or content management

- 40% requiring document design courses

- 40% requiring some kind of genre course (e.g., instructions, proposals)

- A very low percentage offering courses in usability (8 – 11%, elective vs. required, respectively) and research methods (15 – 23%, elective vs. required, respectively)

Given what Meloncon and Henschel found just a few years ago, I reviewed 15 TC undergraduate programs with a goal of identifying courses that seemed to be novel (i.e., courses offered by only a few programs). I wondered if novel courses might mean that some programs were in fact planning with foresight. Of course it might mean the opposite—they could be stuck in the past.

The 15 TC programs were offering foundational TC coursework (e.g., rhetoric, writing, editing, style, grammar, visual design). Some were offering tracks, many were offering client or service based learning opportunities (Bourelle, 2014; Youngblood & Mackiewicz, 2013; Weber & Spartz, 2014), and many were offering internship opportunities. But only a few were offering courses with titles not offered by other programs, e.g., in various genres, methods, design and UX, international communication, and ethics (see Table 1).

Technical Communicator Job Titles

To think about the topics that TC programs could be teaching technical communicators to prepare them for success, I next examined job titles of TC professionals. To do so, I went to the Society for Technical Communication (STC) website where I found a broad list: e.g., technical writers and editors, information architects, instructional designers, technical illustrators, visual designers, web designers and developers, usability and human factors professionals, globalization and localization specialists. Of interest, the STC web page listing these job titles ended with a note about users: "What all technical communicators have in common is

Table 1. Specific Courses Offered by a Few Programs

Category	Sample Courses
Genres	Writing for: Science; Nature, Environment and Travel; Science, Technology, Land and Environment; Biology; Medicine; Environment; Public Relations; Technical Marketing; News
Methods	Usability Testing
Design and UX	Visual and Verbal Communication; Information Design; Web Design; Advertising Design; Interaction Design
International Communication	Communicating in the Global Marketplace; International Business Communication; International Communication
Ethics	Ethics Proseminar

a user-centered approach to providing the right information. . . ." (STC, 2015). Once again, I was bumping into the focus on users. Getto, Potts, Salvo, and Gossett (2013) would argue that UX professionals should be added to the STC job list—they point out that some UX professionals are trained as technical communicators. The job titles listed here relate to the job ads to which TC students apply, and also to the core competencies and skill sets that industry expects of TC graduates

Core Competencies

Given the large list of job titles listed by STC, one might expect considerable breadth in the core competencies expected of TC graduates. In order to identify core competencies expected of TC graduates, Rainey, Turner, and Dayton (2005) surveyed 67 technical communication managers and analyzed the curricula of the 10 large technical communication undergraduate programs. They narrowed in on 63 core competencies and categorized them as most important, secondary, and tertiary competencies. Their most important competencies included skills such as ability to collaborate with subject-matter experts and co-workers, write

clearly, and analyze user needs. Secondary competencies included using "technologies to accomplish documentation work in various media and ability to write, edit, and test various…documents" (p. 323). Tertiary competencies included usability testing, content management, instructional design, budgeting, research, multimedia, cultural understanding. Further definition of some of the more nontraditional competencies include the ability to use web design software, database management programs, graphic and drawing packages; "the ability to field-test a manual"; "the ability to design an effective interface integrating color, sound, and graphics"; and "the ability to develop research questions and to collect data through primary research tools related to applied and basic communication research" (pp. 324-330). Many of Rainey et al.'s secondary and tertiary skills are currently in demand by industry, as shown in the list of job skills presented below.

Adding to Rainey et al.'s list, Carliner (2010) noted that by the late 1990s technical communicators were also designing web sites that provided user support, writing materials used in the web sites, assessing the user experience, and also doing rapid prototyping and usability testing.

More competencies and skill sets that industry expects of TC graduates can be found by examining job ads. I reviewed technical writer job ads, without regional restrictions, on Simplyhired.com (n = 22,224) and Indeed.com (n = 7,402) in February 2015 include the following skills that I have grouped into three categories:

Basic TC Skills

- Writing and editing proposals, reports, software documentation, technical procedure manuals, user manuals, programming manuals, service manuals, operational specifications, web content, clinical data reports

- Creating simple logic diagrams, drawings, graphs, and charts

- Facilitating meetings and collaborating with internal and external subject matter experts

- Managing projects

- Interviewing product developers

- Referring to technical specifications, blueprints, engineering illustrations, and trade journal

Tool Knowledge

- Possessing experience with Adobe Framemaker and Creative Suite, HTML, XML, MadCap Flare

- Understanding mechanisms for securing new technologies, and the impact of new and emerging technologies as well as tools and methods for mitigating risks

Programming, Web, and Mobile Development Knowledge

- Possessing experience in programming languages such as Java and C++, a strong background with HTML, CSS and JavaScript

- Having Web development and Android experience, and strong knowledge of Eclipse, IntelliJ or Visual Studio

The skills listed above agree with the competences listed by Ramey et al. (2005) but also expand on them. The job ads demand the TC basics of writing, editing, design, collaborating, and managing; they also show expectations of tool knowledge and ability to learn tools; and finally they show desire for programming knowledge and web and mobile app development experience. Some of these competencies and skill sets do start to move the TC professional closer to the UX arena.

It is interesting to note that, while my search, without regional restrictions, in Simplyhired.com elicited 22,224 technical writer job ads, it elicited four times more user researcher ads (n = 89,531) and 10 times more user designer ads (n = 247,025), some with skill sets extremely similar to the technical writer job ads—with the addition of skills in methods, design, and UX. Getto et al. (2013) make a strong statement about the relationship of User Experience Design (UXD) to TC:

> 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 (p. 65). [Note that Getto et al. use UX as an acronym for user experience design, not simply user experience.]

TC programs have an opportunity, if they choose, to expand the job opportunities for TC graduates by virtue of the topics that they choose to teach their students. Many of their students are indeed applying for some of the user researcher jobs; in some regions of the U.S., those jobs are considerably more abundant than technical writer jobs. It may be harder for students to apply for UXD jobs until programs teach more topics on design and UX.

Topics TC Programs Could be Teaching

This review brings me back to my initial goal: to discuss what topics TC Programs could be teaching the next generation of TC professionals. In some regions and for some programs, the next generation of TC professionals may include UX researchers and designers if the programs add more topics to their curricula that relate to these jobs (e.g., more topics about methods, design, and UX).

I must emphasize that if programs want to redesign or make major changes to the topics they teach and related curricula, they must think about the climate in which their programs exist, regionally, departmentally, unit-wise, and industry-wise. They must base their decisions on a variety of factors:

- What is academically and theoretically sound?

- What are the critical thinking skills that students most need to master?

- What are their alumni, current students, faculty, advisors, peers, and advisory board members telling them?

- What are the core competencies that local industry is demanding?

- Who are their competitors and what they are offering?

- Where do they want their program, faculty, and students to be in the next 10-15 years?

Carliner (2010) maintains that academic programs should teach durable skills and knowledge, reminding us that technology skills and knowledge become outdated very quickly, but that employers will expect students to have learned some current technologies while in school. Getto et al. (2013) agree with the need to teach durable skills: "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" (p. 66).

Given the caveats described here, and the programmatic and curricular patterns, as well as the competencies and skills expected of TC graduates discussed earlier, TC programs should continue to teach TC fundamentals. Yet TC programs also have the opportunity to expand the topics they teach to meet new opportunities given the changing nature of the profession. Incorporating some of the suggested topics into TC programs might involve hiring new faculty or collaborating with faculty across disciplinary boundaries. Some of the topics are already taught in many TC programs but some are taught by only a few, if any, TC programs. The list presented here makes for a good beginning menu of topics to choose from that will help TC students succeed in industry and academia, today and in the future:

- Fundamentals: e.g., rhetoric, writing, editing, style, grammar, ethics

- Genres: e.g., writing for the web, social media, instructions, proposals (for more specialized genres, see Table 1)

- International communication

- Management and Collaboration: e.g., project management, content management, computer supported collaborative work

- Design: e.g., visual rhetoric or design, document design, information design, web design, graphic design, multimedia design, game design, information visualization

- User Experience (UX): e.g., UX design, interaction design, prototyping, information architecture, experience design

- Methods: e.g., quantitative and qualitative research methods, user research methods/usability evaluation, remote user assessment

- Programming and computation: e.g., introduction to programming, logic

- Tools: current tools to support learning topics described above

Beyond these topics and associated courses is the need for internships and client or service learning, in which students engage in projects and work with industry and nonprofit partners. In such real world activities, students are exposed to the workplace and its culture, and experience active, participatory, experiential learning, sometimes also working in teams, learning management and collaboration skills. Blakeslee (2001) discusses some thought provoking issues that faculty may want to consider when setting up client based projects, e.g., how to choose clients and projects, and the amount of structure and help that faculty should offer. Weber and Spartz (2014) discuss expanding the range of service-learning opportunities with a focus on adding entrepreneurship to client and service learning. Finally, students should be developing portfolios in which they exhibit and reflect on their work.

Conclusions

The choices that programs make about what topics to teach TC students and integrate into TC courses and curricula should be guided by the values of the faculty making program decisions. They may also need to be guided by the interdisciplinary curricular opportunities available on their campuses. As we have seen, the products that technical communication professionals create and work on continue to change from paper media to online media (with forms such as online help, websites, social media, and APIs) to interfaces to applications. The concept of who is using and interacting with the products that technical communicators create, and what those artefacts are, should influence what topics TC programs should be teaching and, in turn, how successful technical communicators will be in the future.

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