HEURISTICS FOR TECHNOLOGY-MEDIATED TECHNICAL COMMUNICATION

- USE OF ONLINE COLLABORATIVE WRITING TOOLS
- UNDERGRADUATE PROGRAMS IN TECHNICAL AND PROFESSIONAL COMMUNICATION
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Heuristics in Our Professional Life: Supporting Technical Communicators without Holding Them Back

*Technical Communication* celebrates its 60th anniversary this year. Our professional and academic field have become mature and respectable, and that is something to celebrate. In our heavily technologized society, technical communication is more important than ever before. Nowadays it comprises more than communication about technology alone, communication itself is also technologized, as are the production processes of communication means. What is more, technical communication is spreading its wings, and is evolving from a predominantly Anglo-Saxon field into a truly international discipline. Our journal, *Technical Communication*, will continue to play the role it has been playing in the past decades, connecting the professional practice to empirical and analytical research, providing thought-provoking theoretical contributions, exchanging practical experiences, and providing tutorials on specialized topics.

**Heuristics and Knowledge Transfer**

Heuristics remain an important vehicle in the knowledge transfer between academic and professional researchers and technical communication practitioners. In last year’s volume of *Technical Communication*, for instance, two articles provided the readers with heuristics. In August, Swarts (2012) offered a list of do’s and don’ts for instructional videos, based on an analysis of YouTube videos with high, medium and low ratings. In November, Jochmann-Mannak, Lentz, Huibers, and Sanders (2012) inventoried design conventions for children’s informational Web sites, based on a content analysis of such Web sites. The first article in the current issue also emphasizes the role heuristics can play in technical communication, merging guidelines for different manifestations of technology-mediated communication (see below).

As obvious as heuristics may be as a relatively concise and user-friendly way of passing on relevant knowledge about effective communication, there are also potential drawbacks. First, they may be at odds with the notion of practical wisdom: building and using expert insights to do the right thing, such as make the right design decisions (Schwartz & Sharpe, 2010). Heuristics may be helpful as long as they do not try to rule out the professional judgment of technical communicators. It is impossible to replace a good technical communicator with an elaborate set of guidelines. We all know that, but we may easily forget when we are confronted with a set of seriously-looking heuristics. In particular an excessive use of low-level heuristics seems to be at odds with building practical wisdom: low-level heuristics are collections of many very specific guidelines that exactly tell us how to design our communication. They seem to be based on the assumption that good document design can be entirely rule-based. Patricia Wright (1985) already stated that “there are very few rules about writing text that are not legitimately broken” and “there is no universally correct way of presenting information” (pp. 424–425). Indeed, two basic assumptions of practical wisdom are that every situation may be unique, and that, as long as humans are involved, many solutions can be found for the same problem.

Another important aspect of heuristics involves the way they can be optimally used by professionals. Heuristics can take many forms, and several of those forms seem to imply an optimal way of using them, very often as checklists in design or (formative) evaluation processes. Heuristics are among the more popular tools used to safeguard the effectiveness of communication, but at the same time their actual and optimal use appears to be heavily under-researched. From a practical wisdom perspective, heuristics should be designed to supplement, inspire, and support professional expertise, not replace it. They must acknowledge that in most cases we are not talking about standard solutions for standard problems. They must connect to already internalized knowledge and enable practitioners to internalize the wisdom contained in them. Ideally, heuristics are no “shopping lists” for lay persons but gateways to...
more explicit and more fundamental insights for experts. They may draw experts’ attention to specific aspects they had neglected before. They may focus experts’ attention on certain characteristics and thereby affect the evaluation standards they use in specific situations. Heuristics may facilitate the discussion between technical communicators and commissioning companies, and at best may show them how hard it may be to design effective communication. In less fortunate circumstances, however, heuristics may suggest that we are actually working in a very shallow business and not contribute to usability and effectiveness at all. From a design and evaluation perspective, the use of heuristics should not unnecessarily complicate the already complex processes (yes, heuristics themselves must be user-friendly, too).

Don’t get me wrong. I have nothing against heuristics. Heuristics are probably among the best vehicles for knowledge creation and transfer in our field. I think heuristics are fascinating, both at the production side (the translation of practical wisdom and research findings in heuristics) and at the utilization side (the use of heuristics combined with practical wisdom in design and evaluation processes). There is a lot of room for fascinating research in these areas, which really may help our discipline (and others) develop further.

Of course, there appears to be a Droste effect here. In the Netherlands, the Droste effect refers to a repetitive visual effect in which a miniature image of the package is included on the package itself, which may go on until infinity. It refers to the classical package of a famous Dutch cocoa brand, but the principle of course goes back much further in the history of art. What I mean to say is that heuristics are a very interesting form of technical communication as well.

In This Issue
The first article in this issue, written by Roger Grice and an unprecedented number of coauthors (at least within the realm of technical communication), focuses on the development and use of heuristics for technology-mediated technical communication. The literature on heuristics of the past decade shows a tendency toward specification of genres that heuristics are assumed to apply to. Interestingly, this article develops a more generic set of heuristics for a wide range of technology-mediated types of communication. Indeed, it gets harder and harder to distinguish specific genres of technology-mediated communication. The authors connect the heuristics to a set of operationalized metrics, but these metrics are formulated as desired effects on the users, not as easily measurable characteristics of the artifact. In five specific cases, they show how the heuristics and metrics may inspire professionals working on the optimization of technology-mediated communication.

The second article, by Jessica Behles, focuses on the use of online collaborative writing tools by practitioners and students. Ever since the mid-1990s, design processes of functional documents have been drastically affected by the emergence of various types of tools, with collaboration and document management as important objectives. Examples of such tools are wikis, online word processors, and learning management systems. Using an online survey, Behles investigated the use of such collaborative writing tools, comparing technical communication practitioners and students. She concludes that online collaborative writing tools are widely used, and that there are differences in use between practitioners and students.

The third and last article in this issue was written by Lisa Meloncon and Sally Henschel. Using content analysis as their research method, they investigated the current state of the art of undergraduate programs in technical and professional communication in the United States. They compared their findings to the results of an earlier study in 2005, so that a development over time becomes visible. In their analyses, they focus on the names or programs, the requirements, their content, and their institutional embedding.

References


Heuristics for Broader Assessment of Effectiveness and Usability in Technology-Mediated Technical Communication

Roger A. Grice, Audrey G. Bennett, Janice W. Fernheimer, Cheryl Geisler, Robert Krull, Raymond A. Lutzky, Matthew G.J. Rolph, Patricia Search, and James P. Zappen

Abstract

Purpose: To offer additional tools for the assessment of effectiveness and usability in technology-mediated communication based in established heuristics.

Method: An interdisciplinary group of researchers at Rensselaer Polytechnic Institute selected five disparate examples of technology-mediated communication, formally evaluated each using contemporary heuristics, and then engaged in an iterative design process to arrive at an expanded toolkit for in-depth analyses.

Results: A set of heuristics and operationalized metrics for the deeper analysis of a broader scope of contemporary technology-mediated communication.

Conclusions: The continual evolution of communication, including the emergence of new, interactive media, provides a challenging opportunity to identify effective approaches and techniques. There are benefits to a renewed focus on relationships between people and between people and information, and we offer additional criteria and metrics to supplement established means of heuristic analysis.

Keywords: technology-mediated communication, design heuristics, usability metrics, usability toolkit, assessing usability

Practitioner’s Takeaway

- The definition of technology-mediated communication is rapidly expanding. Many examples blur the line between author and audience.
- Established heuristic analyses offer attractive simplifications, but may overlook elements key to the success of contemporary technology-mediated communication and useful to any consideration of communication usability and effectiveness.
- This toolkit of expanded heuristics, agreed upon by an interdisciplinary group and based in established metrics, aims to support deeper consideration of relationships and broader assessment of diverse examples of technology-mediated communication.
Heuristics for Technology-Mediated Communication

Introduction

The Tech-Mediated Communication (TMC) Toolkit is the result of several years of development, interdisciplinary research using formal and informal testing methodologies, established heuristics, and the experience of a diverse research group, all focused on the shifting challenges posed by technology-mediated communication. The five exemplars evaluated include an indigenous culture Web site, an image design to promote HIV/AIDS awareness, distance learning classes, a wiki in higher education, and an information gallery for use by children, teens, parents, and their community. Our researchers, faculty, and graduate students in multiple disciplines with diverse professional backgrounds and varying levels of experience with professional, technical communications were drawn together by a shared fascination with the promises and perils of contemporary communication technology. We set out to observe and document tech-mediated communication both broadly and precisely, to measure it against established standards, and then to re-examine those standards in light of our findings, hoping to identify principles that support successful communication across multiple media, platforms, and a wide range of technical means.

The Changing Face of Technical Communication: Expanded Perspectives

A new cell phone, the purchaser’s fifth, built by a prominent Asian manufacturer and sold to him in a box store by a leading U.S. mobile phone service provider, displays an error message. Though he plans to use the phone primarily for audio and text conversations with other people for his small business and thinks in those terms, he is aware of many additional features, including a QWERTY keyboard, mobile Internet browser, flash memory card slot (for a fingernail sized card with 3,000 times the capacity of his first computer hard drive), Bluetooth and USB connections, still and video camera, wireless headset, and software for games, calendar, calculator, and other functions. The full-color quick-start guide that came with the phone helped him begin, but it contains no information about the error. He emails technical support and receives an automated message including a support-line phone number, which he calls from his home line. He is connected to a service representative within two minutes and then to another.

after a few minutes more. Each walks him through a series of steps, the first seeming to test his basic ability to turn on the phone and the second taking him through receiving a software update for it via the network. Neither is successful in solving his problem, which may be due, he is told, to “a bug” in the new phone. Not convinced that a replacement phone is the only solution, he types the error message into a search engine in his Internet browser and reviews the results, many of which seem to lead to a social networking site containing a variety of videos, including, to his surprise, some produced by and featuring a pre-teen expert on this phone and addressing this particular error. By following the steps in the video, he solves the problems, and the phone begins to work as expected.

This sample case, the actual experience of one of the contributing authors, demonstrates why a broader consideration of technology-mediated communication is warranted and illustrates the increasing complexity of real-world technology-mediated communication as it relates a given product’s design and a user’s experience with it. Usability assessments focused solely on human interaction with the device described above or with the quick-start guide alone suggest avenues for improvement but necessarily oversimplify to the point that they fail to wholly describe this case. Likewise, assessments of user experience focused primarily on the unsuccessful support service or on the successful online search for an answer would not adequately describe what actually occurred. If the focus of the analysis is narrowed too far, a researcher might erroneously conclude that the phone is entirely unusable, that the start-up guide should contain information on every possible error message, or that support is entirely unnecessary because all answers to all possible questions are available online for free. The lessons of the case are, in fact, more subtle, reflecting not only the increased complexity of technology-mediated communication itself but also the difficulties inherent in realistic usability analyses. The case illustrates that products and users are part of larger systems influenced by product life span and influencing user experience and product usability:

- Products are not used in isolation but rather become part of larger systems (in this case including the cellular network, another telephone network, the computer network and Internet, the social
network, the search engine, the netbook, and other hardware, software, and documentation).

- Technology has a relatively short life. Short product lives may offer increased certain profits but also drive up associated design costs, accelerate design and production cycles, and increase learning demands on users and on support professionals to the point that proficiency with a given device and the positive experience presumed to accompany it are increasingly rare.

- Usability and experience-related problems occur even with multiple systems in place to keep them functioning as intended. The phone itself functioned as designed in offering a precise error message, the support service provided by email and phone was promptly available, and the service provider's system to download updates to the phone was in place. Even so, the problem was not solved or even moderated by these means.

- People are also part of increasingly larger systems. For every technology, there may be an extended product-related community that includes uncompensated users acting as support personnel. This type of community has, perhaps, always existed for every technology in sufficiently widespread use. Today, however, access to that community (via social networking and communication technology) has vastly expanded, and with it the range of information and services such a community may—in this case did—provide.

The Changing Face of Media: Assessment-Related Implications

Too narrow a focus may, however fine the evaluation, yield an unreliable, unrealistic result. Though rapid technological advancement often accompanies a proliferation of competing models, professionals whose earnings depend on a particular business model are slower to shift away from once-profitable assumptions. Traditional models of technology-mediated communication, therefore, focus on professional services and relative costs and lead to narrow avenues of assessment, as shown in Figure 1.

This model assumes that communication develops from corporate or contracted professional sources. It is, to an extent, accurate, correctly reflecting, for example, the lower costs associated with updating electronic versions of pages, but note that it entirely neglects peer-to-peer relationships and anything outside of a centralized network, both key characteristics of contemporary tech-mediated communication, as shown in Figure 2.

Social networks have no doubt existed alongside every new technology. But where once usability and user-experience-related research could disregard the likelihood of third-party involvement with few consequences, it is now far more likely that any given user, including the one is the case described, will encounter and might find it difficult to entirely avoid unofficial sources. These additional sources may directly influence usability and user-experience, and as a result a broader scope of inquiry is recommended.

Defining Tech-Mediated Communication

As Figure 1 suggests, traditional technical communication is a transfer of information from content producers to content users, perhaps including a negotiation between them. Tech-mediated communication today is a negotiation between producers and users of information mediated by new, emerging, and continuously changing communication...
technologies, including many now familiar features of the Web: blogs, wikis, social-networking sites and technologies, and all of the audio, visual, and interactive elements embedded within them (Bolter & Gromala, 2003; Bruns, 2008; Lessig, 2008; Norman, 2004; Shedroff, 2001; Tapscott & Williams, 2006).

This continuing emergence of new communication technologies as active and dynamic components of technical-communication processes changes the nature of the negotiation between producers and users, with the result that these technologies can no longer be viewed simply as transparent channels or conduits of information between them (Brinck, Gergle, & Wood, 2002; Nielsen, 1993, 2000). Rather they must be acknowledged to be active elements that influence the quality of the total user experience with a technology,
with information producers, and also with other users (Bruns, 2008; Lessig, 2008; Tapscott & Williams, 2006).

Bolter and Gromala (2003) accurately challenge the traditional metaphor of the transparent window, suggesting a metaphor of a reflective mirror instead: a “compelling experience” that invites users to look “at” rather than or “through” a user interface (p. 67). The interface and everything connected to it is an undeniable part of the user’s experience as “successful digital artifacts are designed to be experienced, not simply used” (p. 22). Norman (2004) extends this line of reasoning from the user interface design to design in general, which, he argues, encompasses the functional and also the visceral and the reflective, that is, the effectiveness of use, the appearance, and users’ personal engagement and satisfaction. The quality of the total user experience begins with that positive encounter with a mediating technology and continues onward to play a role in the user’s relationships with information producers and with other users. Bruns (2008) specifically notes that these technologies enable and encourage users to become producers themselves—“producers”—rather than merely passive recipients of information (see Figure 2), creating a stark contrast between the new information economy, which seeks to produce consumer engagement and satisfaction, and the old industrial economy, which focused on maximizing production and worker efficiency and is succinctly captured in Henry Ford’s axiomatic promise to his customers: “you can have any color you like, as long as it’s black” (p. 10). The new information economy does not have this luxury, and so it must instead cultivate “patterns and protocols of interaction and collaboration,” as illustrated in a range of examples from open-source software development to blogs and wikis to creative photo- and video-sharing applications and much more (p. 16). Tapscott and Williams (2006) refer to these new producers-users as “prosumers” and claim that they are active consumers who “increasingly satisfy their desire for choice, convenience, customization, and control by designing, producing, and distributing products themselves” (pp. 52). Lessig (2008) describes this culture of participation and sharing as “remix” culture, noting that users mix text, sound, and images to produce new creative works or “remixes.” Even setting aside the hype surrounding “produser” or “prosumer” culture, it is clear that there has been a fundamental change in the relationship between producers and users that blurs the boundaries between them.

Mediating technologies have also changed relationships between users and other users. Tapscott and Williams (2006) herald the new Web as the dawn of “a new era of collaboration and participation”—tagged “wikinomics”—and celebrate “the rise of a global, ubiquitous platform for computation and collaboration that is reshaping nearly every aspect of human affairs” and opening the floodgates “to a worldwide explosion of participation” (pp. 18-19, 64). Anderson (2006) similarly describes a new “architecture of participation” wrought by communication technologies that democratize the tools of production and distribution of information (pp. 82-84). These tools promote collaborative activity by both individual users and communities of users and so alter the relationship between users and other users, as illustrated by the dramatic successes of Amazon, eBay, Flickr, Google, Wikipedia, YouTube, and other commercial and social sites of information exchange and sharing (Anderson, 2006; Lessig, 2008; Tapscott & Williams, 2006).

Therefore, to understand and assess the quality of the total user experience with mediating technologies necessarily requires more than evaluation of user performance in the execution of specified tasks. As an explanation of this new orientation toward the user, Jordan (2000) deplores what he describes as an overemphasis within the human-factors community on “the effectiveness, efficiency and satisfaction with which specified users can achieve specified goals in particular environments”, insisting on a more holistic understanding encompassing “the wider role that products play in people’s lives” (pp. 7-8). Similarly, McCarthy and Wright (2004) note the dual emphasis on functionality and experience evident in IBM’s twofold commitment to its users: “User Experience Design fully encompasses traditional Human-Computer Interaction (HCI) design and extends it by addressing all aspects of a product or service as perceived by users” (p. 10).

**Incorporating Standing Rules and Measures of Usability**

In many instances, old rules still apply and serve people well. In transactional systems, information-retrieval systems, and other systems that support task-oriented activities, people’s goals are still to be quick, accurate,
and efficient in the completion of a task, and in these instances people are not necessarily looking for engagement or long-term commitment. For this reason, and as the earlier models in Figures 1 and 2 suggest, our group sought to review, consider, and, wherever possible, include industry-standard checklists and protocols (Hargis et al., 1998; Nielsen, 1994, 2006; De Jong & Van der Geest, 2000; Van der Geest & Spyridakis, 2000). At the same time, we sought to widen the scope of our evaluation to include dynamics evident on social media sites such as Facebook, where the desire for efficient completion of an operation in a few clicks is actually at odds with the site’s apparent objectives and typical uses, which invite conditions in which users linger on and spend increasing amounts of time engaged with the site’s offerings. Similarly, many educational sites similarly encourage extended and repeat visits rather than seeking to optimize content delivery in single sessions.

TMC Toolkit Development Methodology

Our methodology began with familiar heuristics, which were expanded upon via an iterative process until they more fully described the usability and user experience in the social-media environment associated with each of our five disparate exemplars.

Initial Heuristics

Nielsen’s (1994) ten heuristics address (1) visibility of system status, (2) match between system and real world, (3) user control and freedom, (4) consistency and standards, (5) error prevention, (6) recognition rather than recall, (7) flexibility and efficiency of use, (8) aesthetic and minimalist design, (9) help allowing users to recognize, diagnose, and recover from errors, and (10) help and documentation. We also referenced Hargis et al.’s (1998) checklist system, developed at IBM Corporation’s Santa Teresa Laboratory and based on the proposition that quality technical information is:

- Easy to use (task orientation, accuracy, and completeness)
- Easy to understand (clarity, correctness, and style)
- Easy to find (organization, retrievability, and visual effectiveness)

Each exemplar was evaluated in two rounds. The first, including researchers and Rensselaer graduate students Elia Nelson, Mohamad Hizar Khuzaimah, Jessica Woods, Dale Bass, and Noah Schaffer, reviewed each exemplar in terms of these established metrics and was also used tentatively to identify experience and usability issues or qualities that the established heuristics did not seem to adequately describe. The second review was conducted by faculty and students on campus and at distance using an expanded set of criteria, the result of general agreement among the research group on appropriate additions to the set of heuristics.

Additional Criteria

The following criteria were the result of suggestions arising from the first round of evaluations:

- Readiness / pre-use
  - Style appropriately suggests author authority / professionalism
  - Apparent value of communication / motivation is to engage
  - Technological requirements for access are minimized
  - Communication (appears to be) crafted with audience in mind, for a known context
  - Required background knowledge is available (unless intentionally excluded)

- Navigation
  - Readability (for example, text large enough to read)
  - Similarity / compatibility with familiar tools
  - Clarity of control mechanisms and interactive objects
  - Flexibility and comfort with communication modes
  - Clear, efficient, and effective communication protocols
  - Meaningful categorizations
  - Meaningful hierarchy of media and text
  - Consistency of visual cues
  - Minimal syntactical complexity
  - Experience
  - Emotionally gripping / involving the affective domain
• Incorporating rich communication modes matching user accessibility needs
• Evoking confidence in the technology
• Incorporating an appropriate degree of personalization
• Displaying appropriate chunking of information
• Visually supporting an immersive experience
• Action / post-use
  • Call to action / next steps or additional information available

Evaluation Scenarios
The second round of evaluations was conducted by the researchers and volunteer faculty, students on campus, and students in Rensselaer’s distance education program, presenting logistical challenges in line with those realistically associated with tech-mediated communication. Three synchronous approaches were used:

1. Large group in a single location: Although the piece of communication being evaluated and observed was mediated by technology, the actual evaluation itself was not.
2. Local test team / remote testers: Since we had the ability to share screens with remote participants, an on-campus evaluation team could “observe” an evaluator who was not on campus, documenting the evaluator’s interaction with the screen and hearing his or her spoken comments via a telephone or voice-over-Internet protocol (VOIP). While this approach may not always provide the same richness of observation possible when evaluator and observers are in the same room, it does provide a useful data set.
3. Remote testers / remote observers: In this scenario, all participants and observers connect from remote locations. This scenario is, in effect, very similar to the previous scenario, though with the increased number of systems and connections comes an additional potential for technical problems.

The TMC Toolkit: Heuristics and Associated Metrics
The TMC Toolkit consists of two directly related parts, (I) a set of heuristics that can be used to guide design or assess usability and user experience, and (II) a set of operationalized metrics that can be used to more deeply examine how optimally a design meets the criteria outlined in the heuristics (Table 1). Each metric includes a defining semantic differential ranging from unmet to fully met, criteria to be used when assessing a product, usability and user experience through behavior, and survey guidelines.

<table>
<thead>
<tr>
<th>Table 1. Overview of Heuristics and Associated Metrics</th>
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<tbody>
<tr>
<td>I. Heuristics and sub-items</td>
</tr>
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</table>

1. Design for diverse users

| a. Recognize that nothing is intuitive to everyone | User is confused < > User understands everything |
| Product Metric: Use is logical and straightforward. |
| Behavioral Metric: User understands the interface without assistance, does not get confused. |
| Survey Metric: User describes experience as logical or intuitive. |

| b. Design for the inevitability of diverse audiences | Greater confusion for some groups of users < > Diverse users understand |
| Product Metric: Experience is consistent across user types. Design elements have the same meaning for all users. |
| Behavioral Metric: User (type) not stumped by the design. |
| Survey Metric: User describes experience as easy to follow. |
### Heuristics for Technology-Mediated Communication

<table>
<thead>
<tr>
<th>Table 1 (continued). Overview of Heuristics and Associated Metrics</th>
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<tbody>
<tr>
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</table>
| c. Provide users with options for differential experience using different views or levels | **User is limited by design** <> **User has options**  
Product Metric: Experience customizable for different users; customization does not hinder design use.  
Behavioral Metric: User is able to customize with ease/considers and enjoys a suitable view.  
Survey Metric: User rates customization highly. |
| 2. Design for usability |
| a. Follow standard usability guidelines | **Confusing non-traditional design** <> **User recognized standard elements**  
Product Metric: Design follows usability guidelines.  
Behavioral Metric: User understands the design based on other experiences.  
Survey Metric: User describes experience as familiar one. |
| b. Enforce readability (font large enough to read; break up blocks of text) | **User disoriented or led astray** <> **User easily perceives site content**  
Product Metric: Design is well organized and easy to navigate.  
Behavioral Metric: User finds what he or she is looking for in a timely manner.  
Survey Metric: User describes experience as efficient. |
| c. Use professional quality design components | **Design perceived to be standard** <> **Design perceived to be enhanced**  
Product Metric: Appearance and content suggest professionalism to user.  
Behavioral Metric: User prefers design vs. other designs.  
Survey Metric: User describes experience as professional. |
| d. Follow general conventions where available | **Highly unfamiliar** <> **User experiences familiarity where expected**  
Product Metric: The design is organized and consistently familiar.  
Behavioral Metric: User is more comfortable with the design vs. others.  
Survey Metric: User describes the experience and familiar and enhanced. |
| e. Offer simple ways to do what users want to do | **Many navigation complications** <> **Quick, free user motion throughout**  
Product Metric: Components are in correct locations. Links work.  
Behavioral Metric: User efficiently navigates through site/design.  
Survey Metric: User describes experience as uncomplicated. |
| 3. Test the technical requirements “backbone” |
| a. Specify the technical requirements or technological backbone needed by users | **User uncertain about requirements** <> **User understands what is needed**  
Product Metric: Requirements for access and use are clearly specified (particularly if unmet).  
Behavioral Metric: User is not confused about requirements.  
Survey Metric: User rates the requirements as clear, highly visible when needed, and easy to understand. |
### Table 1 (continued). Overview of Heuristics and Associated Metrics

<table>
<thead>
<tr>
<th>I. Heuristics and sub-items</th>
<th>II. Operationalized metrics</th>
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</table>
| **b. Ensure the necessary technical requirements or technological backbone needed by the system is in place** | **User uncertainty about system status** < > **User aware system is working**  
Product Metric: System status is clearly visible (particularly if unavailable).  
Behavioral Metric: User shows no confusion about system status.  
Survey Metric: User rates system as reliably functional and easy to access. User does not doubt the system is working as intended; if there is a problem, user reports a clear understanding of system status. |
| **4. Make users feel welcome** |  
| **a. Make users feel welcome** | **User feels ‘put off’ or unwelcome** < > **Users feel welcome**  
Product Metric: Design and experience feels welcoming and friendly.  
Behavioral Metric: User lingers/spends more time in initial, welcoming screens or areas.  
Survey Metric: User describes experience as welcoming or inviting. |
| **b. Use visuals to draw users in** | **Users is intrigued by visuals** < > **User is annoyed by visuals**  
Product Metric: User is engaged by visuals, not distracted by them.  
Survey Metric: User describes visuals as enhancing the experience or as highly useful and helpful. |
| **c. Use sound to enhance experience** | **User is engaged by sounds** < > **User is distracted or annoyed by sounds**  
Product Metric: Sounds are used constructively.  
Behavioral Metric: User stays focused, finds sounds useful or engaging, is not distracted or put off by sounds.  
Survey Metric: User describes sounds as helpful, useful, or enhancing the experience / understanding of the content. |
| **d. Engage the affective domain with visual language (color, icons, symbols)** | **User unresponsive to design** < > **Appropriate user emotions are triggered**  
Product Metric: Visual elements stimulate user emotional engagement.  
Behavioral Metric: User responds to visual language, is drawn in.  
Survey Metric: User describes visual language used as engaging, enhancing the experience, or in terms of appropriate emotional response. |
| **5. Set the context** |  
| **a. Design activities that allow users to become prepared for the experience** | **User feels unready or unprepared** < > **Users feel prepared**  
Product Metric: Experience has appropriate precursor activities that allow for familiarization.  
Behavioral Metric: User encounters an appropriate introductory experience that supports what follows.  
Survey Metric: User rate preparation as useful or helpful. |
### Heuristics for Technology-Mediated Communication

#### 6. Make a connection

| a. Engage people in what is going on; create connectedness | User feels detached <-> Users feel drawn in  
Product Metric: Users can relate to elements of the experience.  
Behavioral Metric: User is focused on the product. User takes less time to learn. User is immersed in the experience.  
Survey Metric: User rates the “connectedness” of the experience highly, or describes it as immersive. |
|---|---|
| b. Understand potential barriers and offer users identifiable ways to overcome them | Users get stuck <-> Users overcome barriers quickly and easily  
Product Metric: Barriers are minimal; universally identifiable and easily grasped ‘hooks’ offer routes through any necessary barriers.  
Behavioral Metric: User does not encounter design barriers, or easily overcomes obstacles.  
Survey Metric: User perceives experience to be barrier-free. Users describe hooks they encounter as easily understood. |
| c. Use well-crafted storytelling to immerse users in the encounter | User uninvolved, rejects premise <-> User is drawn into story/encounter  
Product Metric: Story is worked into experience seamlessly.  
Behavioral Metric: User is invested in story and encounter, does not want to leave experience.  
Survey Metric: User rates storytelling highly, describes encounter as immersive. |

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**Table 1 (continued). Overview of Heuristics and Associated Metrics**

<table>
<thead>
<tr>
<th>I. Heuristics and sub-items</th>
<th>II. Operationalized metrics</th>
</tr>
</thead>
</table>
| b. Provide users introductory context | User lacks context to perform <-> User has sufficient background  
Product Metric: Background information needed is provided.  
Behavioral Metric: User is not puzzled at any stage.  
Survey Metric: Users rates their contextual readiness as high. |
| c. Motivate users to move through any necessary initiation | User has no drive to continue <-> User moves smoothly through  
Product Metric: Experience motivates users to familiarize themselves with the interface, moves them smoothly through as they are ready.  
Behavioral Metric: User responds to incentives, increases familiarity or demonstrates proficiency, and moves through the experience.  
Survey metric: User finds the introduction worthwhile, is not frustrated or unprepared at any stage, or describes initiation as enhancing. |
| d. Limit setup time to a small portion of the total experience | User spends a long time on setup <-> User passes through setup quickly  
Product Metric: Setup is quickly completed by any user.  
Behavioral Metric: User is not confused at any stage of setup.  
Survey Metric: User perceives setup as taking a reasonable or minimal amount of time. |
### 7. Share control

<table>
<thead>
<tr>
<th>Heuristics and sub-items</th>
<th>Operationalized metrics</th>
</tr>
</thead>
</table>
| **a. Follow standard usability guidelines** | **User feels isolated and powerless** <> **User feels in charge**  
Product Metric: Experience flows, contains elements to which user can relate and over which he or she feels a sense of control.  
Behavioral Metric: User is focused on the product, takes less time to learn, finds the experience immersive.  
Survey Metric: User rates experience “connectedness” highly and describes experience as immersive. |
| **b. Provide users with resources to construct something** | **User lacks resources** <> **User has ample resources for creating content**  
Product Metric: Experience includes sufficient resources to create things; participation yields in new content.  
Behavioral Metric: User finds resources with ease, encounters no difficulty constructing things.  
Survey Metric: User rates availability of resources highly. |
| **c. Provide a selection of professional-quality components for users** | **No access to quality components** <> **High quality components available**  
Product Metric: Experience includes access to high quality elements.  
Behavioral Metric: User locates desirable components, is able to use them. User created-content reflects inclusion of quality components.  
Survey Metric: User is happy with component selection. |
| **d. Make the process of interpretation participatory** | **User is left out of interpretation** <> **User is involved in analysis**  
Product Metric: Experience offers opportunities to interpret encounter.  
Behavioral Metric: User sees chances to be a part of the process, participates in interpretation.  
Survey Metric: User is happy with their involvement in the process. |
| **e. Ensure user actions will not have bad or irreversible consequences** | **User is locked in to actions** <> **User can reverse undesirable actions**  
Product Metric: Actions, including errors, can be easily undone.  
Behavioral Metric: Users are confident in their actions and unafraid to act.  
Survey Metric: User reports comfort with error, understands mistakes are not final. |
## Heuristics for Technology-Mediated Communication

### Table 1 (continued). Overview of Heuristics and Associated Metrics

<table>
<thead>
<tr>
<th>I. Heuristics and sub-items</th>
<th>II. Operationalized metrics</th>
</tr>
</thead>
<tbody>
<tr>
<td>8. Support interactions among users</td>
<td></td>
</tr>
</tbody>
</table>
| a. Create opportunities for users to interact | **User feels isolated from other users** $\Leftrightarrow$ **Users interact**  
Product Metric: Experience contains easily accessible interaction opportunities.  
Behavioral Metric: User encounters chances to interact with others. User interacts with others.  
Survey Metric: User rates the experience as very interactive. User is happy with the quality of interactions present. |
| b. Allow users to share what they create | **Users cannot share creations with others** $\Leftrightarrow$ **Users share their creations**  
Product Metric: The experience includes easy ways to distribute user work.  
Behavioral Metric: User utilizes the sharing options.  
Survey Metric: User rates sharing options highly or reports sharing to be a key part of the experience. |
| c. Provide clear protocols for interaction with others | **User is confused re: interaction** $\Leftrightarrow$ **User understands sharing procedure**  
Product Metric: The experience embeds obvious protocols for interaction with others.  
Behavioral Metric: User recognizes and makes use of interaction procedures easily and without errors.  
Survey Metric: User rates the interaction procedures as obvious. |
| 9. Create a sense of place | |
| a. Give users a sense of place, cues about where they are | **User has no clue regarding location** $\Leftrightarrow$ **User has a sense of place**  
Product Metric: The interface features clear, easily visible, and easy to understand indicators of user position.  
Behavioral Metric: Users recognize location indicators, understand where they are and where they are about to go.  
Survey Metric: User rates the location cues as very clear. |
| b. Provide consistency in look and feel to foster a sense of place | **User is confused by different styles** $\Leftrightarrow$ **User has a feeling of unity**  
Product Metric: Experience has a unified theme.  
Behavioral Metric: User welcomes the consistent look and does not get confused.  
Survey Metric: User rates the look and feel as cohesive. |
| c. Allow for efficient search as well as exploration | **User lacks tools for exploration** $\Leftrightarrow$ **User can search and explore**  
Product Metric: Design includes search and allows for exploration.  
Behavioral Metric: User finds what they are looking for quickly. User both searches and explores.  
Survey Metric: User rates search and exploration features as effective. |
Table 1 (continued). Overview of Heuristics and Associated Metrics

<table>
<thead>
<tr>
<th>I. Heuristics and sub-items</th>
<th>II. Operationalized metrics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>d. Use natural relationships (categories, hierarchies, similarity, temporal order)</strong></td>
<td><strong>Seemingly arbitrary connections &lt;-&gt; Natural, easily grasped relationships</strong></td>
</tr>
<tr>
<td></td>
<td><em>Product Metric:</em> Natural connections support progress through the experience and interface.</td>
</tr>
<tr>
<td></td>
<td><em>Behavioral Metric:</em> User quickly and easily navigates, understands relationships.</td>
</tr>
<tr>
<td></td>
<td><em>Survey Metric:</em> User rates movement through the site as natural.</td>
</tr>
</tbody>
</table>

10. Plan to continue the engagement

<table>
<thead>
<tr>
<th>a. Design for the next engagement</th>
<th><strong>User is stuck in the past &lt;-&gt; User is ready to continue</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><em>Product Metric:</em> Relationship with product is ongoing, can persist beyond a single experience or task.</td>
</tr>
<tr>
<td></td>
<td><em>Behavioral Metric:</em> User is drawn into/stays with experience, is willing to return to it.</td>
</tr>
<tr>
<td></td>
<td><em>Survey Metric:</em> User rates continuity of engagement highly, spends more time with the experience.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>b. Make calls to action clear</th>
<th><strong>User is stuck deciding &lt;-&gt; User understands what to do next</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><em>Product Metric:</em> The experience includes beneficial guidance for the user and clear action options.</td>
</tr>
<tr>
<td></td>
<td><em>Behavioral Metric:</em> User makes easy progress from action to action.</td>
</tr>
<tr>
<td></td>
<td><em>Survey Metric:</em> User rates calls to action as clear and easily understood.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>c. Invite users to continue connections past the current encounter</th>
<th><strong>User has no interest in continuing &lt;-&gt; User pursues deeper connection(s)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><em>Product Metric:</em> Progress beyond any given point is available to the user.</td>
</tr>
<tr>
<td></td>
<td><em>Behavioral Metric:</em> User moves deeper into the experience.</td>
</tr>
<tr>
<td></td>
<td><em>Product Metric:</em> User rates access to further experiences highly.</td>
</tr>
</tbody>
</table>

Case Studies: Application of Heuristics and Metrics to Exemplars

Case One: “Tshinanu, All of Us”, A Culturally-based Web site

The *Tshinanu, All of Us* Web site (www.tshinanu.tv) was designed as a companion to the *Tshinanu (Us Together)* television series (2006), and seeks to provide a multisensory experience depicting social, economic, and cultural aspects of life in and around “First Nations” communities in the Canadian province of Quebec. Available in HTML and Flash and in English and French, the site incorporates warm, inviting colors (yellow, red, and brown) with traditional and contemporary images from First Nations cultures (Figure 3). The site design announces to visitors that they are entering a new experience, sets the scene for content they will encounter, and leads them to increased awareness of a unique cultural consciousness.

The Multisensory Experience. Multisensory experiences like this one draw on audio and visual elements to provide content, offering images, colors, forms, and sounds to which users may respond on subconscious and emotional levels. Ideally, the emotional connection creates affective domains that connect users to information and experiences. Users who are engaged and comfortable on an emotional level, are likely to be receptive to the cognitive information that follows (Gazda & Flemister, 1999), resulting in an intuitive experience that envelopes participants in a learning or cultural space (Search, 2007).
Digital Storytelling. Storytelling is a powerful design element, offering an opportunity to connect participants together through shared experiences, information, and other content. Narratives feature prominently in marketing, and in a wide variety of applications in education, business, and e-commerce (Search, 2007). Narratives on Web sites often appear in the form of testimonials, product reviews, wiki, blogs, discussion boards, and social messaging, and are a key element of social networking sites such as Facebook, Twitter, and MySpace. Narratives create a sense of community and give participants a sense of identity. Stories help users relate general principles to specific contexts and personal experiences (Edelson, 1993). As a result, designs including stories can help users understand diverse cultural perspectives by mapping new traditions to their own personal experiences (Search, 2002). Such stories are particularly engaging when they create new learning opportunities or communicate human experiences reflecting familiar emotions and cross-cultural themes (including humor, success, failure, and death). Visitors to Tshinanu, All of Us have an opportunity to ‘meet’ people through numerous videos, learning about their cultural traditions through the stories they share.

Proposals to Enhance the Experience. The experience might be enhanced with additional content, such as maps showing the locations of these featured communities, audio demonstrations of the pronunciation of native words (including Tshinanu), and additional background information about the featured content and the multiple languages included on the site. The following guidelines might create a more lasting and unified experience for a broader audience:

- Inclusion of universal themes, emotional contextualization, or experiences similar to those of the audience to create a sense of community.
- Providing additional background information to moderate the differences between audience cultural experiences and those of the featured subjects.
- Reduction of communication barriers using contextual help such as descriptions of featured
languages, with links to resources for additional study.

- Addition of visual landmarks such as geographic maps and timelines to orient the user and situate the content in a broader, real-world and historical context.
- A means for the audience to engage in the discussion or dialog with others, or to obtain additional information (such as by asking questions).

**Case Two: The Interactive Image**

The HIV/AIDS awareness and prevention campaign exemplar is a Web-based, interactive image designed to facilitate interaction between users and communication designers in the design process through the use of interactive cultural esthetics—that is, a predetermined set of visual elements that the user can customize to suit their cultural preferences prior to production of the final form (Bennett, 2012). It is based on a printed image designed for and with Kenyans through a tech-mediated, participatory workshop process facilitated remotely by expert communication designers in the United States and locally by a graduate student situated in the Kenya.

**Figure 4. Initial Image Design**

*Initial Evaluation.* The first heuristic evaluation of the printed image posted in Figure 4 was conducted with a culturally diverse group of participants through an Internet-based survey on SurveyMonkey.com. The researcher asked local and remote evaluators to complete a dozen tasks based on Nielsen’s (1994) ten usability principles and representing typical interactions between a user and an image. For example, she asked:

- If you saw this image on a wall, would you go over to it to read it?
- What does the red ribbon mean to you? What does the image of Kenya mean to you? What does the image of the woman mean to you?
- What emotions do you feel as you look at the image? Which parts of the image make you feel that way?
- If you were working in a health office and this image was given to you, what would you do? Who would you tell about it?
- Could this image influence your behavior? Could this image influence the behavior of others?

Most evaluators had a weak emotional response to it and concluded they would not engage with it beyond a first glance. The image of Kenya was seldom recognized by and meant very little to participants living in the United States. Similarly, the red ribbon, though used in the US to represent HIV/AIDS awareness, was not universally recognized, and one Nigerian evaluator thought it represented Kenya as a gift. Even evaluators recognizing the message that Kenya has an HIV/AIDS problem did not understand how to “Act Now” as the image advocates, and felt that the call to action required clarification. One African-American evaluator stated that she would share the message of the image with family member. Most said the image would not influence their sexual behavior, though they believed it might influence the behavior of others.

*Redesign and Second Evaluation.* The new set of heuristics guides a transformative redesign of the printed image into the Web-based, interactive one shown in Figure 5. This version has multiple pages. The first welcomes the viewer and offers background information. The second provided instructions on how to use the interactive image. The third displays the interactive image with a given set of modifiable visual elements. For instance, the user can change the identity of the featured person by clicking on the woman and selecting another image, and, by the same means, alter the featured country, font, typestyle, point size, text color, and message (within a set character limit). By clicking on the
margin, the user can print the image to a PDF for email distribution or to a local or networked printer. The user can also click on the image’s background to view a sub-menu containing links to additional social-networking-based sharing options and information, continuing the engagement beyond the image.

The second evaluation reviewed both the original printed design and the interactive image. Participants were of both genders (1:1), a variety of ethnicities, ranged in age from 12 to 55, and possessed a minimum of six years’ experience using the Internet. These evaluators found the interactive design more engaging and enjoyable, and reported that they both felt they belonged in its targeted group and easily understood what to do next throughout the experience. There was an increase in reported interest in the subject of HIV/AIDS awareness. Note, however, that evaluators still did not feel compelled to recommend the interactive image to others or make a deep connection to its content or to a community.

Case Three: Collaborative Wikis in Higher Education

To investigate the collaborative nature of wikis and the potential value of this tool for higher education courses which require multi-authored writing projects, another team embarked on a three-year project involving a wiki prototype. Over four design and testing cycles, the wiki transformed and developed across three wikiware platforms (Mediawiki, Twiki, and ultimately the commercially available Clearspace). In the first two rounds of prototyping and testing, the team created an initial exemplar to better understand the issues involved with asking students to write in a public platform. The team tried to determine the relative influence of users’ perceptions of privacy, intellectual property, and general Web usability on their motivation to contribute. The questions that guided this initial research included: What would motivate participants to contribute? What helps them understand the tool as an aid for collaborative knowledge production? What helps them feel safe enough to contribute content?

After two rounds of design and testing without explicit incorporation into a specific class context, the team realized they needed to design collaborative wiki writing assignments in conjunction with other contextual classroom elements that influence and affect a user’s overall learning experience. In the second half of the project, they worked directly with Rensselaer

Figure 5. Interactive Image Screens, Showing Interactive Visual Elements

Polytechnic Institute faculty in Engineering and Product-Design and Innovation to create a writing assignment that would use wikis and also fit with the professors’ overall course goals. After creating and implementing a pilot assignment in an Engineering course, “Introduction to Air Quality,” in Fall 2007, the team worked with two professors who agreed to use the assignment in their communication-intensive courses in Spring 2008. Professor Lupita Montoya used the revised wiki-based group writing assignment in Introduction to Engineering Design—a required, first-year writing-intensive engineering course—and Professor Dean Nieusma used it in Product, Design, and Innovation, Studio 6—the sixth in a series of design courses where junior students worked together to generate a product concept. By incorporating the assignment in two very different courses whose culminating final assignments included collaborative writing, the team generated a broader range of contextualized responses and feedback.

Although the exemplar was designed and tested for an educational context, students’ experiences with the wiki led the team to develop some design principles which can be applied more generally to
problems of engagement users confront when asked to perform familiar tasks in unfamiliar ways. The wiki specifically helped to facilitate four desirable conditions in educational, professional, and other writing contexts: (1) collaborative knowledge production, (2) better understanding of writing as iterative, recursive, and collaborative, (3) iterative and recursive content development, and (4) and more polished writing.

The group also found that a successful wiki facilitates users’ collaborative writing, participation, and contribution while reinforcing Web writing conventions in a more direct way than other online media dependent on user-generated content, such as blogs or social networking sites. Wikis highlight the value of traditional usability prescriptions (Nielsen, 1994) for Web writing. Text heavy pages or a lack of chunked, bulleted, or visually highlighted information can lead to slower content development, miscommunication, and failures to meet project objectives. Wikis benefit from clear and easy to follow navigation and from following other Web conventions, such as the use of underline and color to denote hyperlinks. Additionally, wiki writing spaces that resemble or evoke established desktop publishing interfaces familiar from Microsoft Word or Open Office often have a gentler learning curve, leading to increased participation and content production. Users expect formatting options such as italic, bold, and underlined text, and may also use font color and size options. They also expect the ability to upload, embed, or link to media such as presentations (in this case PowerPoint, Keynote, and other slide-based formats), video, sound, and images. While other Web-based writing platforms may also invoke or create strong community elements, wikis are the only medium whose community focus begins with and expands out from users’ desire to write together with others, across both space and time.

Case Four: Distance Learning

A wide variety of technologies have been used by corporations and educational institutions as a means to deliver professional training and academic education, including computer-based drills, multi-user role playing simulations, text-based asynchronous chat systems, and Internet-based synchronous meeting and classroom systems. Despite the apparent advantages of distance systems, which, in theory, offer convenience, and reductions in travel time and related expenses, Driscoll (2008) and Shank (2008) point out that many such systems fail due to problems including high development costs and the small percentage of professionals targeted who actually make use of the content.

Rensselaer Polytechnic Institute has provided professional training and education in technical communication for sixty years, and by electronic means for about ten years. A research group consisting of faculty members Robert Krull and Roger Grice and graduate students David Lumerman, Michael Madaio, and Dustin Kirk assessed the effectiveness of electronic delivery systems in use for distance education via questionnaires, observation of learner performance during classes, and using simulations of class workshops. The quantitative and qualitative data collected documented learner performance, perceptions, and preferences. RPI’s distance learning program uses real time video instruction, and our data are not unreservedly applicable to the full range of electronic and non-electronic systems used in teaching and training (listed by Driscoll, 2008) which includes courses totally based in asynchronous and text-based delivery systems like those described by Rubens and Southard (2005, 2000).

Factors in the Success or Failure of Distance Learning. The research team concluded that the success or failure of distance learning depends both on the technology and on the ways it is used. Overall, distance learning can provide a valuable experience for all participants if several factors are considered.

Participants need to cope with a learning platform’s technical requirements and technological components. As the number of technologies used increases, the time necessary for users to launch the system or recover from technical problems increases. The time spent coping with the technology must be added to the time spent directly with instructional content. Participants reported that they needed 20-30 minutes to get all requisite hardware and software running before each class began, and many needed to reboot and relaunch during a class session when any component of the system ceased to function. When the complexity of the learning platform pushes technological boundaries (as our allowing increasing numbers of students to access audio and video simultaneously often did), the delivery system may become fragile. Instructors and learners must make the most of opportunities to discover which stresses on a delivery system lead to failure, and plan to avoid them.
Heuristics for Technology-Mediated Communication

A more elaborate delivery platform may have educational advantages, provided there is enough support for the platform to keep it running. Two online delivery methods (employed by the Society for Technical Communication), recorded conference presentations with slides and audio and webinar conference systems including text chat, work reliably within the capabilities of technology in general use and are less prone to failure, and these work best when information moves downstream from presenters to an audience. RPI’s system incorporating more upstream and downstream channels was more fragile as a result. Technological delivery systems thus tend to reinforce notions of an either/or trade-off between stability and broader participation and interactivity, even while instructional design literature shows that instructors and students benefit from going beyond a purely downstream-oriented master-teacher system (Danchak & Huguet, 2004). The instructional design literature for classroom instruction (Gagné, Briggs, & Wager, 1992), computer-based means (Alessi & Trollip, 2000) or via blended face-to-face (F2F) and electronic means (Horton, 2000), stresses the importance of learner engagement with subject matter beyond passive reception of lectures. However, though active participation and collaboration are generally important, they do not operate in the same way in all learning environments (Benbunan-Fich & Hiltz, 2003).

Particularly when learners are professionals with considerable work experience, they desire to and are capable of collaborating in peer-to-peer instruction. One study of distance learning courses at RPI showed that peer-to-peer collaboration networks yielded individuals who were regarded as particularly knowledgeable, leaders of their learning communities (Sundararajan, 2009).

Learners are inventive, even with simple tools like text chat. Our learners got clarification from each other regarding administrative issues, such as what course content would be on examinations, and on the course content itself, such as the meaning of terms and ramifications of theoretical concepts. This type of learner communication was found to be a key benefit of distance education. Our data suggest that it is important that teachers are able to nurture a collaborative learning community in which learners engage with each other through the upstream components of a distance learning platform. Upstream technical components include text chat, audio through telephone or VOIP Internet networks, and the content of upstream information includes the knowledge generated by learners in their peer-to-peer interactions. Delivering instruction over a purely down-stream system is less effective, and workarounds may be worthwhile. For example, downstream lectures could be supplemented by asynchronous learner interactions whose products are integrated into subsequent lectures.

A blended learning platform that delivers instruction to face-to-face (F2F) classrooms through live discussion and consigns isolated distance learners to collaborating electronically can produce two separate learning communities, one in the classroom and one in the ether. F2F participants can interact with each other without an interposed electronic medium, but they are at a disadvantage in that they have to take turns speaking or they interrupt learners or the instructor. Distance students must interact through electronic media, but those media can both constrain and enhance communication.

At RPI distance learners could interact with each other in real-time via text chat, but for them to draw the attention of participants in the F2F classroom, they needed to have someone in that classroom paying attention to the chat window speak up on their behalf. If instructors directed their attention primarily to the F2F classroom, they might not notice new items in the chat window. To compound the problem, video from the F2F classroom reached distance students after delays of up to one minute. By the time distance learners saw the video, digested its content, and typed in a reaction, the F2F class had moved on. In that sense, the media constrained distance learners from interacting naturally with F2F learners. RPI tried to ameliorate this problem by assigning a teaching assistant to monitor the chat window, to compile related comments, to address some topics without involving the instructor, and to bring important issues to the instructor’s attention. This procedure helped, but F2F and distance students still felt themselves to be part of separate communities. An additional way to ameliorate the problem was to establish an etiquette that indicated it was acceptable for distance learners to signal instructors, even when the signal appeared late. Since everyone recognized that the delivery platform entailed unavoidable delays, they could accept that some adjustments to normal “conversation” needed to be made for the electronic media.
The electronic media also expanded communication possibilities, such as when reliable Wi-Fi signals became available in the F2F classroom, students began to use laptop computers to join distance students in the chat space. Because there was almost no time delay in the chat space, F2F and distance students were able to share comments synchronously. One unanticipated benefit of text chat was that learners could share information without interrupting speakers in the F2F classroom. That benefit made it possible for all learners to make text-based comments on what was said in the classroom verbally, thereby elaborating on the instructor-centric interaction.

These findings can be extrapolated to other educational situations. For example, the Society for Technical Communication’s archive of conference presentations offers downstream information, predominantly in a lecture format. Some other organizations have offered live feeds of video or audio from conference sessions to electronically connected participants who are attending sessions live, but at a distance. Either the STC format or the live-feed format might be augmented by chat spaces or bulletin boards in which participants are able to exchange information electronically. Though the STC’s webinars do have a text-chat component, participants may need additional encouragement to use it to engage in discussion while presenters are speaking. Participants who value the context are more reluctant to engage in side conversations, and this sensibility informs their initial use of text-chat despite the less-intrusive nature of this medium. At RPI, we found that it took a while, sometimes multiple sessions, to establish an etiquette allowing for that kind of discussion but that when such an etiquette is in place, participants are likely to try it out. The STC could explore approaches to communicating to participants that their peer-to-peer interactions are welcome and could be educationally helpful. One method might be to assign a moderator to monitor these interactions as they happen and bring some of the points made in them to the attention of presenters during question and answer periods or even during the presentation itself.

Despite the problem of face-to-face and distance students perceiving themselves to be part of separate, parallel universes, all students felt that mixing face-to-face with distance instruction was a valuable part of learning. Students with very different backgrounds and goals could gain from sharing information with each other.

The two graduate students who developed the first version of the questionnaire we used in various versions over three years, William Wetmore and Louis Ruggerio, suggested that perhaps learners might prefer to watch recorded lectures on their own time and to reserve class time for open discussion. Questionnaire responses showed that, instead, students valued the opportunity to ask questions and make comments during live lectures as well.

Observations of Learners during Classes and Virtual Laboratory Tests. The questionnaire data provided useful information about learner preferences. We added to it by observing F2F and distance learners during classes. We also conducted virtual tests involving observing users collaborating using the whiteboard of the distance platform, then discussing their collaboration. Finally, we held de-briefing interviews after conclusion of the session. Findings included the following:

- Learners needed about half an hour in advance of the class to get hardware and software running, and this time period did not diminish with experience.
- The distance technology needed regular attention during the class. Learners regularly lost connection with the live classroom and needed to re-launch the learning platform. Learners missed some instructional material as a result, though not enough to feel the instructional model was threatened.
- In the two- to three-person groups in the virtual laboratory tests, learners overwhelmingly preferred having an audio connection for discussion to being linked by text chat. For larger groups, audio connections were likely to produce unwelcome echoes or feedback when learners tried to speak simultaneously. The unreliability of multi-source audio led to compensatory behavior on the part of participants, such as repeatedly asking if others could hear them. The etiquette regarding use of the audio channel in class expanded at RPI to include, when possible, the use of microphone enabled headsets to cut down feedback and the muting of participants’ microphones unless they were actually speaking.
- Similarly, a whiteboard feature of a distance learning platform that allowed multiple cursors to appear, one for each user with their names attached, was initially appealing but led learners in full classes...
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The distance learning research team found that the incorporation of this research into their classes took them beyond the feedback typically obtained from end-of-semester evaluations, giving them useful information they would not have otherwise. This type of research might help professional associations, corporate trainers, and other distance educators to fine tune their own electronic systems for information delivery to members.

Case Five: Connected Kids Information Gallery

The Connected Kids information system is a youth services resource for Troy and Rensselaer County, New York, featuring information for teens and adults and a gallery of images (http://connectedkids.rpi.edu/, retrieved March 4, 2012). The gallery is an experiment in the development of user-generated visual, audio, and textual information. This type of design has been celebrated as collaborative and participatory, and it has also condemned as anti-social, dehumanizing, and potentially threatening (Bruns, 2008; Keen, 2007; Lanier, 2010; Lessig, 2006; Tapscott & Williams, 2006). To illustrate these challenges, the gallery explores the opportunities and the problems that accompany the creating and sharing of private or proprietary information resources in an open and public medium. Our tests of the gallery documented some of the special problems—not unique to resources of this kind—related to information sharing among teens. Given the extraordinary popularity of resources featuring user-generated content, organizations of all types—commercial, civic, and social—are challenged to share user content and comments openly and transparently even as they take steps to ensure that they protect their own proprietary information and interests with selective linking, active filtering, community moderators and other means.

A fundamental belief in the collaborative efforts, in the power of “collective intelligence,” and in the “wisdom of crowds” drives the hope (and hype) surrounding this stage in the development of the World Wide Web (Bruns, 2008; Raymond, 2001; Surorciecki, 2005; Tapscott and Williams, 2006), and it also drives predictions of enhanced collaborations, increased participation, and productive social collectives. Tapscott and Williams describe this “new Web” as a model of collective intelligence, “wikinomics” (pp. 18-19), and Axel Bruns posits “collaborative produsage” as the driving force behind collective intelligence, envisioning a new era of “information, knowledge, and creative work, collaboratively developed, compiled, and shared under a produsage model” representing “a fundamental reconfiguration of our cultural and intellectual life, and thus of society and democracy itself” (pp. 16, 34).

Others question this unbridled optimism, pointing to the limitations and even dangers inherent in Web-based information resources (Keen, 2007; Lanier, 2010; Lessig, 2006). Andrew Keen views “the wisdom of the crowd” as illusory—the product not of user-generated content but rather of “user-generated corruption”—and claims that “the cult of the amateur” is responsible for a decline in the quality and reliability of information and the “distorting” and “corrupting” of “our national civic conversation” (pp. 27, 93-94). Jaron Lanier is less pessimistic about the promises of collective intelligence, but warns of the dehumanizing potential of Web-based information systems, which impose technical constraints and thereby reduce human potentials to predefined categories. Whereas Bruns notes that photo, music, and video sharing creates an audience of millions of potential viewers, Lessig cautions that powerful search capacities ensure ready access to these resources for both innocent and not-so-innocent users.

Hope for collaboration and participation on a global scale has thus offset a need to guard against potential abuses, to balance opportunities for rich and diverse user-generated content against the need to safeguard information quality and protect information that is private or proprietary. As a resource designed for teen users, the Connected Kids information system and gallery faces special problems of privacy and protection. The system offers self-serve data entry for local youth-services organizations, with simple copy-and-paste functionality for ease of use. The system also includes separate interfaces for parents and young children, teens and adults, and children or teens of middle-school age. The gallery seeks to collect information...
about youth services and activities in visual and audio formats rather than solely as text. It is built on open-source Gallery software (http://gallery.menalto.com/, retrieved March 4, 2012) with sophisticated search and comment functions, user-owned albums with thumbnail images, slideshows, show-and-hide customization, and flexible administrative and oversight options. The content in the gallery includes visual, audio, and textual components representing teen school, after-school, and summer-camp activities, such as school science projects, skating images with coach and skater interviews, and summer camp educational content on issues related to local ecology and basic wilderness survival. This content is largely user-generated, posted by teachers or camp counselors who own and manage their own ‘albums’, sometimes with our assistance.

**Special Measures: Privacy and Protection.** To meet some of the special challenges associated with protection and privacy of information sharing by teens, we require signed permissions for all photos of teens posted to the gallery, and we permit only school officials, teachers, and youth services personnel to post content of any kind. We also prohibit users from posting comments without moderator oversight. Since the gallery initially features a comment function without moderator oversight, we developed this function ourselves and shared it with the larger open-source community. The function, however, does delay response times, serving as a deterrent to its use by teens, who, even more than adults, expect their actions to generate immediate results.

**Assessing the Gallery’s Features.** To assess the gallery’s features, we conducted user tests on site at a local high school, including open-ended small-group discussions. Our tests showed a mixed response to the gallery, with general appreciation for its sophisticated features but reservations about its limitations as an information-sharing resource. From a usability perspective, students encountered little difficulty with the gallery though they seemed to prefer browsing to searching. From an experiential perspective, however, students noted the apparent lack of clarity of purpose and limited opportunities for image and information sharing. They expected more information in the form of locations, directions, maps, hours of operation, and the like. They also expected more activities or games and more color and visual appeal generally. Most strongly, they felt that a gallery directed to teens should include more of their own content and opportunities for them to add their own descriptions and captions for their work. As one of them observed, “the people who made this know more about it than anyone else.” In the high-school and summer-camp albums, especially, they wanted to see more comments by people their own age. In follow-up interviews with teachers, we learned that the students had regular experience with Google searches but especially enjoyed browsing in Photobucket (http://photobucket.com/, retrieved March 4, 2012). We suspect that this prior experience influenced their preference for browsing and also their expectation of ease of access and use of photo-sharing and comment functions.

These challenges are not unique to teen users but reflect broader trends toward heightened expectations for information sharing coupled with the need to protect private or proprietary information. Our tests results suggest that these challenges are substantial and will likely increase as teen users become adults. To address these challenges, we suggest a kind of compromise that permits but delimits user-generated content by selective linking and/or strict moderator oversight of discussion groups, blogs, or forums. Web-savvy users regularly access product information from resources such as CNET (http://reviews.cnet.com/, retrieved March 4, 2012) and Newegg (http://www.newegg.com/Feedback/Reviews.aspx, retrieved March 4, 2012) and from discussion groups, blogs, or forums, which provide ready answers to troubleshooting questions about products and services. Game forums, moreover, provide information not only about basic product functions and features but also information about how to use products strategically to get positive results (see, for example, http://forums.worldofwarcraft.com/, retrieved March 4, 2012).

To paraphrase our teen user, “the people who use this product know more about it than anyone else.” Commercial, civic, and social organizations are challenged by the next generation of users to deploy user-generated information resources to best advantage, to promote their products and services and, at the same time, through selective linking and active moderator oversight, to protect against inaccurate or negative information and also to protect their proprietary information and interests.
Conclusion

The emergence, and continual evolution, of new, interactive communication media and techniques provide many opportunities for technical communicators to communicate more effectively with their audiences; they also provide challenges. A major challenge is to determine what techniques and approaches to usability are effective and which ones are not. Many usability principles and metrics developed in the past enable us to assess certain aspects of technical communication in a tech-mediated world, but new technologies and new communication forms challenge us to identify additional assessment tools and metrics suited to the new communication environments in which we live and work.

In this study, we have examined aspects of technical communication that could benefit from renewed focus on the relationship of people and the information that they use. We have developed a TMS toolkit that consists of a set of ten TMS heuristics and a set of metrics that technical communicators can use to assess how well individual pieces of tech-mediated communication meet the goal of satisfying those heuristics.

This project demonstrated to our research group that tech-mediated communications in a variety of contexts moves users from control, through identity, and toward community, by processes distinct from those evident in traditional document-centered technical communication. It also documented a few of the many ways that the proliferation of technologies and of information influences issues of usability and user experience. Traditional metrics for the evaluation of document usability—efficiency, accuracy, and satisfaction—though still highly relevant are no longer adequate, by themselves, for use in designing or evaluating tech-mediated communications. Though the TMC Toolkit can be used to evaluate a wide range of tech-mediated communications and is, itself, an end product here. It also represents one stage in a process of progressive re-evaluation that will continue—must continue—as communication and technology continue to change. Broadening the scope of the evaluation of communication need not mean abandoning tried and true ideas, nor should it involve a relaxation of rigor. It simply involves surveying more connections, considering the blurring line between author and audience, and carefully, cautiously measuring what we find.

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About the Authors

Roger A. Grice is a professor of practice in technical communication and human-computer interaction in the Department of Communication and Media at Rensselaer. He was elected Fellow of the Society for Technical Communication and received the society’s Jay R. Gould Award for Excellence in Teaching Technical Communication and IEEE Professional Communication Society’s Alfred N. Goldsmith Award for Contributions to Engineering Communication. He is retired from IBM, and now conducts HCI research as a member of the Rensselaer faculty, as well as teaching courses on human-computer interaction, communication design for the World Wide Web, information usability, and technical communication. Contact: gricer@rpi.edu.

Audrey G. Bennett is an associate professor in the Department of Communication and Media at Rensselaer. She teaches courses in communication design theory and research and conducts research on collaborative and participatory design as methods for cross-cultural communication. She is editor of *Design studies: Theory and research in graphic design* published by Princeton Architectural Press that chronicles historical and contemporary efforts of designers to broaden the scope of the profession of graphic design to include user research. Her research includes development of a theory of interactive esthetics that democratizes the design process and places designers in virtual collaboration with lay users. Contact: bennett@rpi.edu.

Janice W. Fernheimer is assistant professor of Writing, Rhetoric, and Digital Media at The University of Kentucky where she teaches courses in rhetoric, technology, and pedagogy; digital writing; and Jewish rhetorical studies. Her research focuses on questions of identity, invention, and cross-audience communication. Previously, she was an assistant professor in the Department of Language, Literature, and Communication at Rensselaer. Contact: jfernheimer@uky.edu.

Cheryl Geisler is Dean of the Faculty of Communication, Art, and Technology at Simon Fraser University, as well as a professor in the School of Interactive Arts and Technology. Prior to joining SFU, she spent more than 20 years at Rensselaer in multiple leadership roles including two terms as head of the Department of Language, Literature, and Communication. Recently, she was the principal investigator of RAMP-UP, a National Science Foundation-funded project for institutional transformation. Contact: cheryl_geisler@sfu.ca.

Robert Krull is an independent researcher and recently retired as professor in the Department of Communication and Media at Rensselaer Polytechnic Institute. He has been involved with multiple projects for the Society for Technical Communication, and received the Jay R. Gould Award for Excellence in Teaching Technical Communication. His research areas include instructional television, media effects, computer documentation and interfaces, and acquisition of physical skills. Contact: rkrull@nycap.rr.com.

Raymond A. Lutzky is a doctoral candidate in the Department of Communication and Media at Rensselaer. His research includes usability, graphic design, and visual rhetoric. He supported public relations strategy for the 2007 STC Annual Conference and previously served as assistant to the STC President for student outreach. Contact: lutzkr3@rpi.edu.
Matthew G. J. Rolph is a doctoral candidate in Communication and Rhetoric in the Department of Communication and Media at Rensselaer. Previously, he served as adjunct faculty in the departments of English and Interdisciplinary Studies at Plymouth State University from 2001-2004, then as coordinator for Plymouth State’s College of University Studies from 2004-2008. Contact: rolphm@rpi.edu.

Patricia Search is a multimedia artist and professor at Rensselaer Polytechnic Institute. She has exhibited her artwork in 31 solo exhibitions and numerous international shows. Her art has been featured in over 35 publications including three documentaries. She received best research paper awards from the World Conference on Educational Multimedia and Hypermedia and the International Visual Literacy Association (IVLA). She was awarded a Fellowship in Computer Arts from the New York Foundation for the Arts, Fulbright Senior Specialists Grant for research in Australia, and the Creative Achievement Award from IVLA. She was President of IVLA from 2009-2010. Contact: searcp@rpi.edu.

James P. Zappen is a professor in the Department of Communication and Media at Rensselaer. He is author of The rebirth of dialogue, published by the State University of New York Press, and has also published in Journal of Technical Writing and Communication, Technical Communication Quarterly, Philosophy and Rhetoric, Rhetoric Review, Rhetoric Society Quarterly, and other journals. He is former President of the Council for Programs in Technical and Scientific Communication and has served as a consultant to the Dow Corning Corporation, the Michigan Judicial Institute, the New York State Department of Labor, and other organizations. Contact: zappenj@rpi.edu.

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The Use of Online Collaborative Writing Tools by Technical Communication Practitioners and Students

Jessica Behles

Abstract

Purpose: This study investigated technical communication practitioners’ and students’ use of online collaborative writing tools (OCWTs), as well as their opinions about these tools. This family of tools includes wikis, online word processors, learning management systems (LMSs), and other collaborative tools. The data gathered were used to illustrate these tools’ value to practitioners, as well as provide educators with recommendations about which tools to teach students.

Method: Surveys were deployed to technical communication practitioners and students; each group had its own survey. The surveys gathered quantitative and qualitative data. The qualitative data were analyzed through a coding system.

Results: Roughly 85% of both groups used OCWTs; however, practitioners used them daily while students used them only weekly. Practitioners primarily used tools chosen by their companies, and their most-used tools were Microsoft SharePoint, Google Docs, and company intranet. Students were features driven, and their most-used tools were Google Docs, PBWorks (formerly PBWiki), and Blackboard. Both groups had positive opinions overall about OCWTs.

Conclusion: Technical communication practitioners appear to be using these tools often in the workplace, and several OCWTs appear to have become standards. These tools seem to hold value for practitioners, who use them for a wide variety of collaborative tasks. Technical communication students and educators should be aware of the OCWTs and collaborative tasks found in industry so that students can learn them. These tools include wikis, online word processors, and SharePoint (or something similar, such as an LMS). Finally, some tasks that practitioners perform (single sourcing, project management, and so forth) appear unfamiliar to students—it would be beneficial if students learned to perform these tasks in the classroom.

Keywords: collaborative writing, wikis, digital collaboration, pedagogy, groupware
Introduction

In a 2007 survey of 1790 technical communicators, Jones (2007) discovered “that technical communicators engage in a wide variety of collaborative writing activities” (p. 290); however, the importance of collaborative writing is no secret to anyone within the field. Equal importance should be placed on the tools and methods of collaborative writing. In fact, after studying 55 articles about collaboration in technical communication, Thompson (2001) concluded that “discussions of collaboration are likely to occur with discussions of other important issues in technical communication, for example, electronic technology” (p. 166). Indeed, as the Internet has become an everyday tool for technical communicators, the prevalence of collaboration via electronic technology has increased. According to an American Business Collaborative study cited by Brown, Huettner, and James-Tanny (2007), 80% of workers are somehow involved in virtual teams (p. xi). This statistic illustrates that technical communicators may already be embracing the tools of digital collaboration.

But what tools are they using and to what extent? Unfortunately, these questions are not easily answered—little research exists on the topic of digital collaboration in general, and most of it focuses on managing virtual teams and similar topics, rather than the tools themselves. Additionally, empirical quantitative data regarding technical communicators’ use of these tools is lacking. Various sources claim, based on author experience and anecdotes, that their use on the rise, yet there are few statistics to back these claims.

As Thompson (2001) concluded, “Collaboration as a research issue… seems firmly rooted in technical communication as a discipline” (p. 167). This well established need for research about collaboration within the field, combined with the aforementioned high level of worker involvement in virtual teams, suggests a need for research in the area of technical communicators’ collaborative work within the context of the modern digital era. This research necessarily encompasses the tools technical communicators employ to work collaboratively via digital media. Such tools may include groupware, wikis (Web pages characterized by distributed authorship), online word processors, and other technologies allowing practitioners of technical communication to write collaboratively with others over the Internet (or another network type).

Further, the use of these tools seems to be on the rise in academia, yet “despite the increasing frequency of their use in composition classrooms, wikis have been largely absent from the published conversation in the computers and writing field” (Lundin, 2008, p. 434). However, much like the case with practitioners, there is little empirical information about technical communication students’ use of wikis and other collaboration tools in the classroom. In fact, Rice observed that instructors “often overlook the rhetorical and dynamic opportunities Web 2.0 technologies

Practitioner’s Takeaway

- The use of online collaborative writing tools (OCWTs) has become widespread in the technical communication field, with roughly 85% of practitioners using them—and 57% of those on a daily basis.
- Particular tools (for example, Microsoft SharePoint and Google Docs) are becoming standards in some technical communication workplaces. Therefore, it may be advisable for practitioners to embrace these tools, if they have not already.
- Students are using OCWTs, but most only use them on a weekly basis. Some do not see the relevance of using these tools in the classroom.
- Students should be familiarized with not only the OCWTs used in the technical communication workplace but also the tasks for which practitioners are using them.
- Students should also be informed of practitioners’ use of these tools so that using them in the classroom feels relevant, rather than a waste of time.
Use of Online Collaborative Writing Tools

offer students’ technical writing practices” (p. 303). This oversight may be caused by the lack of empirical knowledge about the tools used by practitioners.

This article is the result of a study conducted to address the lack of empirical data about the use of online collaborative writing tools by technical communication practitioners and students alike. Specifically, I studied the use of tools from a family I dubbed “online collaborative writing tools” (OCWTs). My definition for this family includes tools that allow users to work collaboratively on writing projects through digital media. Tools in this family can range from real-time collaboration tools to tools that include communication or scheduling functionalities. Some tools within this group are sometimes referred to as Web 2.0 tools; however, not all Web 2.0 tools are OCWTs. Because collaborative writing is so vital in technical communication, it was the focus of my study. Therefore, the study excluded tools used solely for communication (such as e-mail, instant messaging, or voice over Internet protocol programs).

To address the need for empirical data concerning OCWT use, I developed surveys for technical communication practitioners and students to investigate these groups’ tool use. In this article, I discuss OCWTs and their relationship to both technical communication industry and education, and then I describe the methodology used to generate, distribute, and analyze the surveys. The subsequent two sections are devoted to the results of both surveys and a discussion of those results, followed by some recommendations based on the data found in the surveys. Finally, I conclude with other possible avenues of research to expand on this study.

Industry and OCWTs

“As technical communication has evolved over the last 20 years, it is likely that writing processes—including methods of collaboration—have evolved with them,” stated Jones in 1997 (p. 292). Indeed, within the technical communication industry, the tools and methods of collaboration have evolved alongside the field as it embraced the Internet and other digital technologies. Thompson (2011) pointed out that digital collaboration tools emerged as early as 1995, after which “all researchers publishing articles... agree that electronic technology is integral to collaboration” (p. 166), underscoring the early relationship between collaborative writing and technology.

Further, throughout the last decade, increasing numbers of references have been made to technologies similar to some of today’s primary digital collaboration tools. For example, Ray and Ray (2000) discussed predecessors to today’s online collaborative technologies, such as early groupware, which “allows team members (or only selected team members) to create, review, revise, annotate, or otherwise contribute to documents,” enabling “the entire team to participate in the document development process easily yet provide for specified levels of document security” (p. 123). Salopek (2000) provided an example of the expectations for these types of tools: “The trend is toward a browser-based client, easy to use, with little or no training required” (p. 43). Both descriptions sound similar to some technologies in use today, including wikis.

Finally, to underscore the recent prevalence and importance of OCWTs, Wagner and Shroeder legitimized the use of wikis as collaboration tools in their 2010 article, in which they analyze wiki technology within frameworks offered by accepted media choice theories, and then compare this technology to others that have been previously analyzed within these frameworks. The authors concluded, “Wiki-based collaborative content creation enables new communication practices.... Wikis support a considerable variety of communication activities and provide a credible alternative to other business communication technologies currently in use” (p. 68).

These sources seem to indicate that wikis, and OCWTs as a whole, have evolved over the past decades to become both legitimate and necessary within the technical communication field. In light of this evolution, the lack of empirical data about OCWTs is both surprising and perplexing.

Education and OCWTs

While it is easy to see the importance of researching technical communication practitioners’ use of OCWTs, it is less obvious why students’ use of these tools should also be studied. The first reason is the existence of a reflective relationship between the field’s industry and pedagogy. Thompson (2001) argued that industry and education tend to look toward each other when deciding the field’s standards. She concluded from her study of collaboration in technical communication workplaces and classrooms that “courses should comply
with workplace practices and focus on the skills and attitudes required to excel at a job. The best determiner of these skills and attitudes is the workplace” (p. 168). Conversely, she also pointed out that “a few classroom-based researchers suggest that workplace practitioners should look to the classroom for advice. Research about classroom collaboration can have functional value for the workplace” (p. 168). This mirror image between industry and education suggests that technical communication research should reflect both of these aspects because anything affecting one side of the mirror will affect the other.

In her 2010 article about incorporating wiki technology into the university classroom, Walsh drew similar conclusions about the relationship between industry and education. She states, “Familiarity with standard workplace technologies recurs in nearly every definition of expertise for technical communicators” (p. 190), which points to industry’s technology use as a guide for pedagogy. Additionally, West and West (2009) emphasize the importance of implementing the collaborative tools found in the workplace into technical communication pedagogy: “Students who engage in online collaboration and wiki work during their education will be well prepared for the challenges of the virtual workplace” (p. 127). These sources both lend further support to the idea that technical communication industry and pedagogy are closely related.

Based on this mirrored relationship and the apparent rise of OCWT use by technical communication practitioners, educators have recently begun deploying these tools in the classroom (Rice, 2009; Tharp, 2010; Walsh, 2010; West and West, 2009). These efforts have been met with varying levels of success.

After implementing the Web 2.0 technologies into the classroom collaboration setting, Rice (2009) received mixed results from students. Some had extremely positive experiences, saying things like, “We write collaboratively so that we get good experience with how others write…. I also thought the Web 2.0 technologies helped show how writing doesn’t exist in a vacuum” (p. 312). Unfortunately, other students were less enthusiastic, with comments such as, “I won’t use Web 2.0 technology in my internship or future job. Why do I need to learn something that I’ll probably never use in my profession?” and, “This course would be better if more time were spent learning technical writing methods and less on writing collaboratively on the Web” (p. 313). These statements have the vital implication that students think they will not be using these technologies in their future careers.

Unfortunately, because there exists little specific empirical research about OCWT use in industry, it is difficult to disprove these students’ assumption that they will not use these tools during their careers. The very existence of literature about these tools implies they are used, but this implication does not replace the need for empirical data. Nobody really seems to know how much, which, or for what purposes OCWTs are used in the technical communication workplace.

Therefore, specific research about OCWTs in this vein is essential; empirical data could justify the inclusion (or exclusion) of these tools within technical communication pedagogy. If technical communication practitioners do in fact use these tools frequently, this information could be relayed to students to increase their enthusiasm for the technology. However, given the opposite discovery, the teaching of OCWTs could be replaced with more practical topics, or (true to Thompson’s 2001 observation that “the workplace can learn from the classroom,” p. 167) the technical communication industry could take its cue from education and begin using the tools that the students have already become accustomed to using.

### Methods

This section discusses the research questions that drove this study and the methods used to conduct the surveys as well as code and analyze the results.

### Research Questions

I used the following questions to frame my research and generate the survey questions.

- Who is using OCWTs (specifically, practitioners or students)?
- How often do they use them?
- Which tools are they using?
- Why did they choose these tools?
- What tasks do they perform using these tools?
- How do they feel about the tools they use?
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Surveys
Because of the mirrored relationship between education and industry, the primary targets for my research were both practitioners and students of technical communication. Targeting both groups would enable me to make observations about and comparisons between their uses of OCWTs. I wanted to include everything from wikis to groupware, yet exclude communication tools (like chat programs or e-mail) and social media. To this end, I explicitly defined the term within my survey to attempt to limit responses to those relevant within the scope of my research.

The surveys were comprised of multiple choice and open-ended questions. The purpose of the multiple choice questions was to establish respondents’ demographics, whether they had used OCWTs before, and, if so, how often they used the tools. The open-ended questions were used to discover qualitative information about the groups’ tool use. The questions from both surveys can be found in Appendix A: Survey Questions.

The surveys were published via the online survey site Zoomerang (www.zoomerang.com). Both surveys were deployed on 29 December 2010 and closed on 23 February 2011. I distributed the practitioner survey via STC special interest groups, the TECHWR-L e-mail discussion list, STC’s LinkedIn page, and word of mouth. The student survey was distributed via the Council for Programs in Technical and Scientific Communication listserv as well as via educators in technical communication programs across the country.

Coding the Qualitative Responses
My first step was to sort through all of the responses and disregard any for which the responses were conflicting or otherwise incorrectly completed. Some examples of discarded (hereafter known as anomalous) surveys included student surveys filled out by professors, a survey in which the respondent said he or she had never used OCWTs but answered the other questions anyway, a survey in which the respondent had used only Wikipedia (for research rather than collaboration), and other similar circumstances.

I then examined all responses to the open-ended survey questions (questions 7-12) and discarded any tools that did not fit the provided definition of “online collaborative writing tools.” For example, I discarded a Google Scholar response to question 7 (“list the tools you use/have used”) because the respondent said she used it for “looking up information, research,” which is not within the scope of this study.

Next, I coded the responses to open-ended questions 10 (“briefly explain why you chose each tool”), 11 (“describe the activities for which you used each”), and 12 (“give your impressions of each”). Following the methodology offered by Hughes and Hayhoe (2008), I defined codes at the phrase and word levels. The highest level categories were reasons, uses, and opinions, which relate to questions 10, 11, and 12, respectively. However, please note that I grouped the codes into these categories based on the code itself, and not according to the question for which it was originally given.

Table 1. General Coding Example

<table>
<thead>
<tr>
<th>Response</th>
<th>Reason code(s)</th>
<th>Use code(s)</th>
<th>Opinion code(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Like. Several people can edit the same document at the same time, and you can watch what each person is changing. Document permissions are very helpful.”</td>
<td>features-simultaneous users; features-user permissions;</td>
<td>synchronous</td>
<td>positive; positive-feature rich</td>
</tr>
<tr>
<td>“Highly useful for real-time editing/collaboration. Document types are restrictive, and formatting does not transfer well to other formats (e.g., gdoc to MS Word); the free price is excellent though. Space is limited for storage, which could be a problem in the future.”</td>
<td>price-free;</td>
<td>synchronous; editing</td>
<td>neutral; positive-useful; negative-lacks features</td>
</tr>
</tbody>
</table>
Table 2. Opinion Coding Example

<table>
<thead>
<tr>
<th>Response</th>
<th>First coding (overall tone)</th>
<th>Second coding (specific opinions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Like it overall. Only thing I dislike is occasional glitchiness on certain computers.”</td>
<td>Positive</td>
<td>Negative-glitchy</td>
</tr>
<tr>
<td>“Easy to edit pages and leave comments, hard to navigate.”</td>
<td>Neutral</td>
<td>Positive-user friendly; negative-unintuitive</td>
</tr>
</tbody>
</table>

Table 2 shows two examples of coding based on answers two respondents gave to question 12. Note that although the responses were given specifically for that question, the codes were categorized independently (that is, reason, use, and opinion codes were assigned, even though question 12 only asks respondents for their opinions).

The coding of the reasons and uses categories were straightforward and based directly on the responses given. I took a different approach to the more subjective opinion category. I first approached question 12 at the response level, assigning each response negative, positive, or neutral based on the overall tone of the answer given. Then I coded question 12 responses again, this time at the word and phrase levels, and then categorized this second set of codes into the negative and positive subcategories, as appropriate.

Table 2 shows an example of how I double coded a student’s responses to question 12. Note how I assigned the overall positive code at the response level despite the negative-glitchy code assigned at the word level.

I approached opinions in this way to express respondents’ particular praises or criticisms of the tools while still illuminating their overall attitudes. This respondent is a good example of this: She criticized the tool’s “glitchiness” yet liked it as a whole.

**Results**

The following section focuses on the survey results. I briefly address the quantitative (multiple choice) questions, followed by a more detailed discussion of the qualitative (open ended) data. A more in-depth treatment of these results can be found in the subsequent discussion section.

**Multiple Choice Questions**

After discarding any anomalous responses (as explained in Methods), I received 95 practitioner and 69 student responses; however, not all respondents answered all questions, so results differ by question.

For question 4 (“Have you used OCWTs?”) 90 practitioners responded, and 77 (87%) said they have used OCWTs. Out of 67 student responses, 57 (85%) said they have used them. Figure 1 shows the frequency with which practitioners and students used OCWTs.

Out of 56 responses, 32 practitioners said they used OCWTs daily. Interestingly, a similar number (30) of the 59 student respondents used these tools on a weekly basis.

Figure 1. Frequency of OCWT Use

**Figure 2. Student Usage of OCWTs**

<table>
<thead>
<tr>
<th>Use of OCWTs</th>
<th># of Practitioners</th>
<th># of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Only Professional</td>
<td>8%</td>
<td></td>
</tr>
<tr>
<td>Mostly Professional</td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td>Equal</td>
<td>14%</td>
<td></td>
</tr>
<tr>
<td>Mostly Class</td>
<td>24%</td>
<td></td>
</tr>
<tr>
<td>Only Class</td>
<td>34%</td>
<td></td>
</tr>
<tr>
<td>Number of Respondents</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Practitioner</td>
<td></td>
<td>8%</td>
</tr>
<tr>
<td>Student</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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Figure 2 shows the respondents’ answers to question 5 on the student survey. As seen in the figure, students used the tools primarily for classes—more than half used them for mostly or only class work—while few used OCWTs solely for professional work. I received 59 student responses to this question.

Open-Ended Questions
The survey’s open-ended questions focused on which OCWTs the respondents were using, why they chose those tools, how they used those tools, and how they felt about the tools. These questions were the same for practitioners and students alike. In this section, I will introduce the practitioners’ and students’ responses to these questions, beginning with a general overview of the codes I extracted from responses, followed by a discussion of some of the most popular OCWTs mentioned.

Overview of qualitative responses. I assigned a total of 529 practitioner codes, extracted from 57 responses to questions 10, 11, and 12. There were a total of 145 reason codes, and the most common reason category was required (48 mentions) followed by features (41 mentions). In terms of individual codes, the most listed were required-organization/company (24 mentions), features-versioning (17 mentions), and price-free (12 mentions).

For students, I assigned a total of 471 codes from 41 responses. The students’ most common reason category (out of 133) was features, which was tied with required at 34 mentions each. Additionally, the most common individual codes were price-free (16 mentions), required-class/school (16 mentions), features-security (13 mentions), and features-comments (7 mentions). Figure 3 shows the relative amount of practitioner and student reason category responses.

Out of 200 practitioner use codes, the most common category was collaboration, which had 102 codes, and then document management with 53 codes. The most common individual codes were collaboration-writing (35 mentions), document storage with 29 mentions, and asynchronous with 22 mentions.

Out of 185 student use codes, the most common use category was collaboration. Specifically, the most common individual codes were collaboration-writing (35 mentions), with document management-document storage (34 mentions) and collaboration-asynchronous (33 mentions) immediately behind. Figure 4 shows the breakdown of practitioner and student use categories.

For practitioners, there were a total of 184 opinion codes. Recall that I coded these responses twice: once in terms of the overall tone of the response (positive, negative, and neutral) and again in terms of specific codes. For the first coding, the overall attitudes of the practitioners toward the tools were mostly positive with 49 responses (59%), while neutral and negative had 17 (21%) responses each. The students had 153 opinions from the first coding. In terms of overall tone, the students gave 44 positive (46%), 14 neutral (20%), and 11 negative (16%) responses.
In terms of the practitioners’ specific responses (second coding), the opinion code positive-user friendly was the most common at 24 mentions. The next most common codes were unintuitive at 12 mentions and clunky at 8 mentions. Of these codes, 49% were positive.

For students, 56% of the opinion codes were positive. Positive-user friendly was the most common specific opinion code with 25 mentions. Other common codes included negative-lacks features (12 mentions), negative-unintuitive (8 mentions), and positive-useful (7 mentions). According to these results, practitioners appear to feel less positive about OCWTs than their student counterparts.

Commonly mentioned OCWTs. This section presents detailed results for the tools themselves. Practitioners mentioned a total of 45 unique OCWTs, not including those I discarded for not fitting the definition provided in question 4 of both surveys (for example, Google Wave). Figure 5 shows the relative and total usage for tools mentioned three or more times. A full list of all OCWTs mentioned by respondents is available in Appendix B: Student and Practitioner Tools.

From left to right, the segments of each bar represent the number of times each tool was mentioned as the most used, second most used, and third most used, respectively. The rightmost segment represents instances where the tool was reported but did not appear as one of the three most used.

As seen in the figure, the five tools used most by practitioners were Microsoft SharePoint, Google Docs, company intranet, MediaWiki, and shared databases.

Microsoft SharePoint, mentioned by 22 respondents, is a centralized content management system for collaboration and document management. In addition to a number of communication functions, it has a wiki feature and can be run on an intranet or on the Web. This tool is a company standard in many organizations; therefore, the company’s or the organization’s IT/engineering team is often responsible for choosing this tool. Practitioners used SharePoint primarily for document storage and sharing and project management. The overall responses were positive, with 13 positive, 6 neutral, and 0 negative responses. Positive-user friendly was the most common opinion code, while unintuitive was the most frequently named negative code.

With 19 practitioner respondents naming it, Google Docs (an online word processor) was the second most commonly used OCWT. Respondents chose it because it was free and convenient, and they used it most commonly for real-time and asynchronous collaborative writing. Much like SharePoint, the reaction to Google Docs was positive. In terms of overall attitudes, 9 were positive, 1 was neutral, and 1 was negative. Additionally, there were 9 positive codes and 4 negative codes. User friendly was the most common positive code, and disruptive was the most common negative code.

Another apparent standard, company intranet was mentioned by 13 respondents. The respondents’ organization/company chose this tool to be used for document storage, scheduling, and collaborative writing. The overall response here was, again, mostly positive: there were 4 positive, 2 neutral, and 1 negative. In terms of individual codes, positive-user friendly had 2 mentions, making it the most common opinion code for this tool.

Ten respondents named MediaWiki. This OCWT was actually one of the earliest wikis, and it is the platform upon which the popular Wikipedia is run. Often chosen by the organization/wiki, this tool was used by practitioners for asynchronous collaborative
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writing and policies and procedures development. Overall, practitioners liked this tool less than the more commonly used tools; it received 3 positive, 3 neutral, and 2 negative overall responses. However, it received 7 negative codes (it is most seen as inconvenient and unintuitive) and only 3 positive ones.

Little can be said about shared databases because this OCWT suffers from a lack of data, and few observations can be made. Regardless, it appears disliked by practitioners. In terms of overall reactions, it received 4 negative responses, 1 neutral response, and 0 positive responses. Out of the negative codes, lacks features was mentioned most.

For students, there were 31 unique tools fitting the survey’s scope. The total and relative numbers of responses are shown in Figure 6.

As seen in the figure, the five most often used tools listed by students were Google Docs, PBWorks, Blackboard, Moodle, and wikis (general)—that is, wikis with no particular brand named.

Google Docs was mentioned by 32 respondents and was chosen primarily because it was free, had an easy-to-use interface, and had commenting and file sharing features. Students used it primarily for document storage as well as real-time and asynchronous collaborative writing. The general opinion of Google Docs was positive overall (17 positive, 5 negative, and 4 neutral overall responses). In addition, there were 20 positive codes (the most common being user friendly, convenient, and functional) and 13 negative codes (with lacks features as the most common). These data suggest that student users of Google Docs were pleased with the tool.

The second most mentioned tool (named 14 times) was PBWorks, a wiki formerly known as PBWiki. Students chose it for its commenting feature, for its easy-to-use interface, and because it was required by professors. This tool was used primarily for document storage and asynchronous collaboration. Finally, respondents felt slightly positive toward PBWorks, with overall responses consisting of 4 positive, 4 neutral, and 2 negative. The most common positive code (out of 6) was user friendly, and the most common negative code (also out of 6) was unintuitive—an interesting contradiction.

Blackboard is a learning management system (LMS) often used by educational institutions. In addition to communication and document storage tools, Blackboard also has wiki functionality. Seven respondents listed this tool and frequently chose it because it was required for a class. It was used most often for asynchronous collaboration and document storage. Although the overall responses were slightly positive, with 3 positive, 3 neutral, and 1 negative, students mentioned 5 negative codes (the most common being lacks features) and only 3 positive codes. These data imply a more neutral opinion of Blackboard.

Similar to Blackboard, Moodle is an open source LMS; it was mentioned by 6 respondents. Students used it because it was required for class; they also used it for document storage and discussions. Students viewed Moodle positively, with 2 positive, 2 neutral, and 0 negative overall responses. Among the 5 positive codes were feature rich and user friendly, conversely, clunky was the only negative code for this tool.

Wikis (general) were the fifth most mentioned tools, mentioned by 6 students. Unfortunately, they were typically listed as third or “other” in terms of relative frequency, so they have few codes associated with them. All of the opinion responses and opinion codes were positive, yet because the sample size is so small, it is unclear whether this is an accurate representation of students’ opinions of this tool.

Discussion

Within this section, I analyze in more detail the observations I have drawn from the data presented in the previous section. I open the section with a discussion of certain considerations that readers should be aware of when examining my results. I then discuss the practitioners’ responses, followed by the students’, and close the section with a comparative look at both sets of data.

Considerations

This section contains the considerations for and limitations of my survey results in terms of their accuracy and representation of technical communication students and practitioners.

There may have been some skewing of my results due to the surveys being circulated within specific communities like schools and companies. For instance, if a school required students to use Blackboard, every respondent from that school would list it, possibly
giving an unrealistic impression of how many people use it. Similarly, if a company’s policy was to use an internal wiki, every respondent from that company would say they used internal wikis, possibly inflating the usage for that tool. Despite this issue, the most commonly listed tools and codes were mentioned both often enough and far enough apart (in terms of respondent numbering) that this phenomenon likely impacted the results only minimally, if at all.

Additionally, I allowed no consideration for respondents’ technological capabilities. For example, if respondents were using their home Internet connections or computers, their impressions of the tools may differ from those gained using the systems and connections at their places of work. As a result, if a tool was described as slow, clunky, or glitchy, it may have been due to a slow computer or Internet connection, rather than the performance of the tool itself. However, this issue would primarily affect the opinion codes, which I viewed and coded much more broadly than the other code categories.

The final, and possibly most problematic, concern with this study was its small sample size. With fewer than two hundred respondents in total (and no notion of response rates due to the use of discussion lists), it is difficult and possibly misleading to overstate conclusions about either group. As with any study, a larger sample size would have been better; however, the information gathered in this study represents more knowledge than previously existed about this topic. Therefore, it is best to think of this research as preliminary data for what has the potential to become an expanded study in the future.

**Practitioner Responses**

According to practitioner responses, OCWTs were chosen because they are required by respondents’ companies, IT/engineering teams, or bosses/supervisors. However, practitioners also chose tools for their features, especially versioning (which includes version control and backup/restoration functionality), which was the most popular feature. Budgetary concerns were also driving forces in OCWT choice, especially for free tools. Some tools were also chosen because they were open source—a reason completely unmentioned by students. Another practitioner-only reason for choosing a tool was for the ability to reuse content; however, it was mentioned only twice, so this result’s real interest lies in the fact that students did not mention it.

Practitioners had a much wider range of uses than did the student respondents; many uses went completely unmentioned by any student participants. These included the entire internal subcategory, which included project management, policies and procedures development, project tracking, and best practices creation. Other practitioner-specific uses were single sourcing, collaborative planning, document maintenance and publishing, and information sharing. Despite these additional uses, asynchronous collaborative writing was still the most common use among practitioners; OCWT use for real-time collaboration was roughly half that of asynchronous.

Practitioner respondents appear to have an overall neutral-to-positive opinion of OCWTs. Usability is a very important factor to these respondents—their primary praise was user friendliness, while their two largest criticisms were unintuitiveness and clunkiness. Additionally, some practitioners mentioned that a tool was inadequate for their needs. This may be a result of tools being chosen by somebody else within the company, rather than by the practitioners who actually use them.

The most mentioned practitioner OCWT, Microsoft SharePoint, seems to emerge as an industry standard in technical communication for companies that leverage collaboration among technical communicators. In fact, somebody other than the respondent frequently chose it. This tool was used surprisingly little for collaborative writing itself. Rather, practitioners used it primarily for document storage and project management. In terms of collaboration, SharePoint was used more for coordinating collaboration via communication, such as through information sharing and scheduling. The fact that the practitioners used their most commonly listed online collaborative writing tool for purposes other than (but related to) collaborative writing begs the question of whether practitioners possess a wider definition of collaborative writing than students.

There exists an interesting contrast between Microsoft SharePoint and Google Docs, which was practitioners’ second most used OCWT. Google Docs, unlike SharePoint, was only rarely chosen by somebody within the company—perhaps implying that, given the choice, technical communication practitioners would choose Google Docs over SharePoint for collaborative writing. Practitioners chose this tool because it...
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was free, convenient, and easy to use. Also unlike SharePoint, practitioners used Google Docs primarily for collaborative writing and equally for real-time and asynchronous collaboration. Respondents performed some document management and communication activities with this tool, but its use was mainly for collaborative writing. Practitioner opinion of Google Docs seemed very positive because it was seen as user friendly; however, some users pointed out some disruptive aspects they encountered when using the tool, such as printing and formatting issues.

Student Responses

As a whole, technical communication students seemed to have positive attitudes toward OCWTs, despite their downsides, such as formatting issues. Most students used these tools on a weekly basis, with some daily and monthly use by a smaller number of respondents. These data suggest that these tools are familiar to students. Further, there seems to be some correlation between OCWT use outside the classroom and increased frequency of use, suggesting that students may encounter these tools more outside their curricula. It must be noted, however, that this observation could be attributed to the small sample size, so it cannot be represented as fact.

When OCWTs were not chosen to meet work or class requirements, students chose tools based on features and price (for example, free). Some of the most common features were in the features-security subcategory, which included not only privacy but also aspects like user permissions. Student respondents also focused on esthetics, mentioning how simple, customizable, or attractive the tools’ interfaces were.

Student respondents used OCWTs nearly equally for document storage and asynchronous collaborative writing. In addition, the tools were used for real-time collaboration roughly half as often as asynchronous work. Another major use was discussion, which likely stemmed from using these tools within the class environment.

Students seemed to feel quite positive toward tools that are user friendly and useful (that is, fitting their needs), yet they are turned off by a lack of features and a clunky, unintuitive interface that is difficult to navigate or search. Interestingly, these respondents have negative opinions when features are lacking, but rarely mention positive opinions focused specifically on features. Regardless, judging from their choices of tools based on available features and their negative opinions of tools they see as lacking features, it seems that technical communication students are very features driven.

Google Docs is clearly the most popular tool among student respondents. It is both the most frequently listed tool overall, as well as being mentioned often as students’ most-used tool. Students have overall positive opinions about Google Docs despite a few complaints. Students used this tool nearly equally for real-time and asynchronous collaboration, and they also used it as a document repository. Respondents chose this tool because it was free, but in some cases, they chose it for specific features or because it was required for class or work. One student mentioned choosing this tool was because group members already had Google accounts—an interesting reason that was not listed for any other tools.

The second most mentioned OCWT, PBWorks (formerly PBWiki), is interesting in that it was rarely mentioned as students’ most used tool. It was often a secondary, or even tertiary, tool for students. It was frequently a requirement for class or work, or even an arbitrary choice. Most respondents used it as a document repository, but others used it for asynchronous collaboration and to provide comments and feedback on peers’ work. Students’ opinions about PBWorks are slightly on the positive side of neutral; although it fit their needs, respondents found this tool difficult to use.

Blackboard, Moodle, and other LMSs accounted for a reasonably large number of student-used OCWTs. This result is interesting not only because it was restricted only to student responses, but also because LMSs were never mentioned on the survey, nor did I encounter them within my secondary research. Yet several students mentioned using them for document management, collaboration, and communication without any external prompting. However, LMSs share many functionalities with other OCWTs, so their inclusion by student respondents is reasonable. In fact, several students mentioned specifically using LMS wiki functions. Predictably, these OCWTs were used primarily because of class requirements. Student reactions to Blackboard (the most mentioned LMS) were barely on the negative side of neutral (a lack
of features and hard-to-use interface being its major drawbacks), while students felt much more positive about more and feature-rich LMS Moodle.

Comparison
Overall, the reasons various OCWTs were chosen, the ways they were utilized, and the way respondents felt about them were generally similar across both groups. Both groups felt positive about the tools as a whole, yet the students seemed to have better specific opinions of them. This difference may stem from the fact that the student respondents had more freedom to choose their own OCWTs, whereas in many cases, practitioner respondents’ tool use was dictated by company authorities.

One of the most interesting results from this study is the fact that roughly 85% of both respondent groups said they had used OCWTs. This result suggests that education and industry do indeed tend to mirror each other, as discussed earlier in this article. However, although similar numbers of respondents had used the tools, the frequency of use varied. Half of the practitioners said they used OCWTs on a daily basis, while slightly more than half of the student respondents used the tools on only a weekly basis. This suggests that although the same percentage of respondents said they had used the tools at all, practitioners seem to use them more frequently. The disparity in frequency between the groups may also indicate that there is a slight lag between education and industry in the use of these tools.

Another distinction between the two groups’ responses lies in the assigned codes, which reveal some interesting differences between the groups. First, the practitioner respondents have fewer reasons for choosing various OCWTs—possibly stemming their relative lack of freedom in choosing the tools they use. However, the practitioners utilize the tools for a wider variety of purposes than the students. The practitioners’ wider range of OCWT uses may be the reason this group uses the tools on a daily basis, compared to the students’ weekly use.

One surprising result is that students seemed to focus more on security aspects than did the practitioners. This may be because some practitioners work for companies with their own security measures. Therefore, this result may suggest that practitioners take security for granted while at work, whereas the students need to take extra precautions. Another difference is the students’ focus on OCWT esthetics. Students mentioned aspects such as attractive, simple, or customizable interfaces more than practitioners—in fact, practitioners only mentioned customizability and not any of the other aesthetic traits students listed. Much like other cases mentioned here, this disparity may link back to the students’ relative freedom in choosing OCWTs; if practitioners are generally unable to choose their tools, esthetics may be considered a nonissue.

Finally, when it comes to OCWTs chosen by respondents (rather than by somebody else, such as a professor or supervisor), Google Docs seems to be the overall most popular tool for both groups. In addition, although SharePoint was the most used tool among practitioners, it was used for tasks beyond collaborative writing. This may suggest that Google Docs is both groups’ most popular tool used specifically for online collaborative writing. Despite some conflicting opinions, such as, “Like the app; works well; has lots of features,” and, “I hate the reformatting because it interferes with proofreading. Also, I dislike the lack of comments features,” both groups had overall positive responses to this tool. Students and practitioners alike found Google Docs to be user friendly and convenient—and, of course, free. However, despite this praise, several respondents from both groups mentioned problems working with this tool. For example, they had difficulties editing, reformatting, converting/exporting to other file formats, and printing. Regardless, Google Docs appears to be a popular and useful OCWT for students and practitioners alike who are involved in online collaborative writing. One student response particularly summed up respondents’ overall opinion of Google Docs: “LOVE! Free!”

Recommendations
Although this study may only be a pilot, the results nevertheless imply that OCWTs are indeed prevalent in the field of technical communication. They also suggest that some of these tools have become company standards and, as such, are here to stay. Furthermore, these data empirically support past claims to this effect made in the field’s literature. To reiterate the findings, practitioners are using OCWTs on a daily basis for
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collaborative writing and other collaboration-related tasks (such as scheduling, document sharing, and more). Students, by comparison, use them weekly and primarily for collaborative writing specifically.

The results of this study suggest that technical communication practitioners are using OCWTs often, implying that these tools hold much value for them. This value can be seen in the wide variety of collaborative tasks for which these tools are used. In a business climate in which 80% of workers participate in virtual teams on a weekly basis (Salopek, 2000, p. 39), it seems vital that practitioners embrace the tools that best enable collaborative teams to work efficiently.

In fact, in an older article about considerations for matching team needs with appropriate collaboration technologies, Ray and Ray (2000) note, “Perhaps the most notable for technical communicators… are the extensive document management features that groupware offers” (p. 123). They suggest that some of the vital traits for collaboration technologies are user access controls, searchability, information sharing, and communication. The results of this research seem to underscore the importance of these traits. Indeed, technical communicators are using OCWTs for similar purposes today. Further, Ray and Ray mention some drawbacks of early groupware programs—they were expensive, required training, and were inflexible—which have largely been negated over the past decade. Recall that the OCWTs most used by practitioners in this study were preferred because they are free, intuitive or easy to use, and often customizable. Therefore, the results suggest that OCWTs do, in fact, meet the needs of today’s collaborative teams.

Additionally, these results seem to indicate that some OCWTs have become company standards within the industry. With roughly 57% of practitioner respondents using these tools on a daily basis, it appears that they are on the rise in the workplace. Practitioners already using these tools appear to be on the right track, while the rest may find themselves struggling to catch up as OCWTs’ prevalence increases in the workplace.

Finally, consider the mirror image relationship between technical communication industry and pedagogy. The results of this study suggest that 85% of students are encountering these OCWTs, both in and out of the classroom—these students are already learning how to use these tools. Once these students enter the technical communication workplace, they will likely continue to use them, reinforcing the apparent existing standard of using these tools. One can surmise that OCWT use in industry will further increase with the influx of students who have already been exposed to the tools.

Therefore, it seems that the best course for technical communicators is to continue to embrace these tools. Practitioners currently using these tools should refine how OCWTs are best used for technical communication, as well as assess how each meets the needs of the technical communication team. For holdouts who perhaps have not yet accepted the usefulness of OCWTs, hopefully these results will illustrate the value of incorporating these tools into the workplace.

Regarding technical communication students, educators have long understood the importance of preparing them to collaborate in the workplace. The results of this study suggest that practitioners in the technical communication workplace use OCWTs for their collaborative activities—and educators should prepare students to meet that expectation. In other words, students must be exposed to these tools in and out of the classroom so they will be able to use them effectively and efficiently in the workplace. This assessment agrees with the following statement by Walsh (2010): “Because preparing students for the workplace has remained a perennial concern of technical communication educators, incorporating wiki pedagogy in the technical writing classroom seems like a natural step” (p. 184)—however, wikis are only a single tool within the spectrum of OCWTs, and educators should not neglect the other options.

Specifically, educators should focus on the tools used most commonly within industry. In addition to wikis, educators should prepare students to use Google Docs and Microsoft SharePoint (or tools with similar functionalities). These three types of tools appear to represent the bulk of OCWTs used by technical communication practitioners. Wikis and Google Docs are already seeing some utilization in the classroom; however, SharePoint may be more of a priority because this study shows that this OCWT is more widely used by practitioners. Because it may be difficult for educators to implement SharePoint in an educational setting, LMSs may serve as alternatives. SharePoint and LMSs
share many functionalities, such as wikis, document storage space, communication and scheduling tools, and more. Also, LMSs are already implemented in many educational institutions, making them ideal for familiarizing students with this family of tool.

Furthermore, students should be instructed in the specific types of collaborative tasks performed in the workplace using OCWTs: real-time and asynchronous collaboration; discussion and scheduling; document storing, sharing, and maintenance; information sharing; distance collaboration; project management and tracking; and others. This study also revealed tasks performed within the technical communication workplace that are apparently unfamiliar to students, given that no students mentioned them. These activities include controlling versions and revisions for documents with multiple authors, single sourcing, authoring best practices, and managing and tracking projects.

Conclusion

Being a pilot, this study is obviously not all inclusive, but I have endeavored to fairly and accurately represent the technical communication field despite the limited number of responses I received. Further, although the limited scope of this study did not allow me to examine every facet of the data I gathered from the surveys, I strove to analyze the most relevant and applicable aspects. That said, in addition to repeating this study with a larger sample size, there are several ways this research might be expanded upon in subsequent studies. For example, I should have asked practitioners for the size of the companies they worked for, which would have given me a more accurate picture of the various situations in which OCWTs are used.

Another possible research avenue focuses on yet another group vital to the technical communication field: educators. Even though this study has produced knowledge useful to technical communication educators, it would be valuable indeed to determine their use of and opinions regarding OCWTs in the classroom, as well as how they are preparing students to meet tool-related challenges in the technical communication workplace.

In fact, a number of educators responded to my survey. Unfortunately, those responses were discarded from the main data set because they were outside the study's scope. However, I offer some examples here to provide a taste of what this group has to offer. Several educators (who responded to the student survey) said they were using the Blackboard LMS and a number of different wikis (Wikispaces and PBWorks, primarily) in their classrooms. Also represented were Google Docs (mentioned by the sole practitioner-educator) and Google Sites. In general, those who used Blackboard did so because it was already implemented at the school, while wikis were chosen because they were free and convenient. The educators as a whole were generally pleased with these tools, but there was some frustration with certain aspects (such as not enough space to store documents, printing problems, and so forth). However, this is a very small sample, and it cannot be said that it is representative of technical communication educators as a whole.

An expanded study on educators’ use of OCWTs in the classroom would provide valuable insight into how and why educators are (or are not) using these tools to teach technical communication students. Additionally, such a study may reveal whether educators are aware that OCWTs are widely used in industry—and, if so, whether they are capitalizing on that knowledge. Finally, it could also determine if educators are shying away from these tools. As Lundin (2008) states, “Despite [wikis’] popularity, academia often lags behind, both in its acceptance of resources such as Wikipedia and in its use of wiki software” (p. 433). One could surmise that wiki popularity in particular lags in education due to Wikipedia’s poor academic reputation—to many, the word “wiki” is synonymous with Wikipedia.

To summarize, the results of the student and practitioner surveys suggest that 1) technical communication practitioners have not only embraced OCWTs as effective for workplace and virtual collaboration, but they should continue to do so; and 2) technical communication students must become more exposed to OCWTs because these tools will be frequently encountered in the workplace. In closing, I offer the following thought from Salopek (2000): “The tools will inevitably come along. The real question is, will we come along with the tools?” (p. 39).
Use of Online Collaborative Writing Tools

References


About the Author

Jessica Behles graduated in 2011 with a B.S. in Technical Communication from the New Mexico Institute of Mining and Technology. She recently moved from New Mexico to realize her childhood dream of living in downtown Chicago. Jessica is interested in the apparent disconnect between academia and industry in Technical Communication and its effects on students’ preparedness for the workplace. Contact: j.e.behles@gmail.com.

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## Appendix A: Survey Questions

<table>
<thead>
<tr>
<th>Question #</th>
<th>Practitioner</th>
<th>Student</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>How old are you?</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Please indicate your gender.</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>What is the highest level of education you have completed?</td>
<td>What best describes your student status?</td>
</tr>
<tr>
<td>4</td>
<td>What is your job title (and/or primary duties)?</td>
<td>Have you ever used online collaborative writing tools?</td>
</tr>
<tr>
<td>5</td>
<td>Which of the following describes your use of collaborative tools?</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>On average, how often do you use (or have you used) online collaborative writing tools?</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Please list the online collaborative writing tools you have used and/or are currently using.</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>If you listed multiple tools in Question 7, please list them in order of relative use, with most used at the top of the list.</td>
<td>For the three most commonly used tools you listed in Question 8, please briefly explain why you chose each tools.</td>
</tr>
<tr>
<td>9</td>
<td>If you listed a proprietary tool (or tools) in Question 7, please briefly describe it (or them) in terms of relevant features and primary uses.</td>
<td>For the three most commonly used tools you listed in Question 8, please describe or list the activities for which you used each.</td>
</tr>
<tr>
<td>10</td>
<td>For the three most commonly used tools you listed in Question 8, please briefly explain why you chose each tools.</td>
<td>For the three most commonly used tools you listed in Question 8, please give your impressions for each.</td>
</tr>
</tbody>
</table>
Use of Online Collaborative Writing Tools

Appendix B: Student and Practitioner Tools

This section contains the lists of all applicable OCWTs mentioned. The tools are listed in order of most commonly named to least.

<table>
<thead>
<tr>
<th>Student and Practitioner Tools</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Student</strong></td>
</tr>
<tr>
<td>Google Docs</td>
</tr>
<tr>
<td>PBWorks</td>
</tr>
<tr>
<td>Blackboard</td>
</tr>
<tr>
<td>Moodle</td>
</tr>
<tr>
<td>wiki (general)</td>
</tr>
<tr>
<td>Google Groups</td>
</tr>
<tr>
<td>Google Sites</td>
</tr>
<tr>
<td>shared databases</td>
</tr>
<tr>
<td>Wordpress</td>
</tr>
<tr>
<td>Dropbox</td>
</tr>
<tr>
<td>internal wiki</td>
</tr>
<tr>
<td>intranet</td>
</tr>
<tr>
<td>Mediawiki</td>
</tr>
<tr>
<td>Microsoft SharePoint</td>
</tr>
<tr>
<td>Wikispaces</td>
</tr>
<tr>
<td>Web CT</td>
</tr>
<tr>
<td>AppleDocs</td>
</tr>
<tr>
<td>Confluence</td>
</tr>
<tr>
<td>Dokuwiki</td>
</tr>
<tr>
<td>Joomla!</td>
</tr>
<tr>
<td>Lotus Notes</td>
</tr>
<tr>
<td>Microsoft Project</td>
</tr>
<tr>
<td>Microsoft WebApps</td>
</tr>
<tr>
<td>PMWiki</td>
</tr>
<tr>
<td>Proprietary</td>
</tr>
<tr>
<td>Sakai</td>
</tr>
<tr>
<td>WebBoard</td>
</tr>
<tr>
<td>Wetpaint</td>
</tr>
<tr>
<td>Yahoo Groups</td>
</tr>
<tr>
<td>Yammer</td>
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<tr>
<td>MOO</td>
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</tbody>
</table>
Current State of U.S. Undergraduate Degree Programs in Technical and Professional Communication

Lisa Meloncon and Sally Henschel

Abstract

Purpose: This paper updates Harner & Rich’s 2005 survey of undergraduate degree programs in technical and professional communication (TPC) in the U.S. and provides information about the current number of degree programs, locations of degrees programs, and curricula, both required and elective.

Method: We used course catalogs to analyze the curricula of 65 programs that offer majors in TPC. We employed qualitative inquiry methods based primarily on textual analysis and the deployment of codes to assign a summative attribute for course types.

Results: We located 185 undergraduate programs in TPC in the U.S. that offer majors, concentrations, emphases, tracks, and specialization, a 131% increase from the 2005 study, and restricted our analysis to 65 programs that offered majors in TPC. Degree programs no longer are predominately housed in English departments. The most significant gain is to the number of programs housed in Technical Communication Programs. The majority of programs require 30-36 hours of credit. A set of “core courses” are emerging in the field-wide curricula. There is a significant increase in the number of programs requiring document/information design, Web, internship, and capstone courses. In contrast, few require literature courses.

Conclusion: Curricular data show an emerging consensus on the core courses and elective courses within undergraduate curricula. In addition, for the first time, the field has data to assess trends over time.

Keywords: undergraduate degree programs, core courses, trends in U.S. curricula

Practitioner’s Takeaway

- Affords hiring managers a better understanding of what it means to have a degree in TPC
- Provides a better understanding of curricular practices and trends in U.S. undergraduate degree programs
- Offers programs opportunities to collaborate with other programs and practitioners in updating or revising curricula
Overview of U.S. Undergraduate Degree Programs

Introduction

In 2005, Harner and Rich completed an overview of 80 undergraduate Technical and Professional Communication (TPC) programs that offered majors, minors, concentrations, emphases, tracks and specialization. Since that time, we have identified 185 similar programs, an increase of 131%. However, scholarship about undergraduate degree programs has not kept pace. Other than an attention to assessment (Allen & Hundleby, 2010; Salvo & Ren, 2007; Thomas & McShane, 2007; and Yu, 2008), TPC scholars have not examined undergraduate curricula. This growth, combined with the dearth of scholarship, makes the timing right for an updated overview of undergraduate degree programs in the United States. We begin our report on the current state of undergraduate degree programs with a description of the study’s methodology, and then provide answers to the following questions:

1. How many undergraduate degree programs offer a major in technical and professional communication?
2. What is the breakdown of majors by degree type (that is, BA vs. BS)?
3. Where are those degree programs administratively located?
4. What are the names of undergraduate degree programs?
5. What are the course credit hour requirements of undergraduate degree programs?
6. What courses are TPC programs requiring their students to take and what elective courses are being offered to students?
7. How do our findings compare with Harner and Rich’s (2005) study?

We end by discussing the study’s findings and by including questions for the field to consider regarding growth and sustainability of TPC undergraduate degree programs.

Study Methods

The data presented here are parts of a much larger study of U.S. Programs in TPC. The study method followed the same process as previously described (Meloncon, 2009; Meloncon 2012) and included four stages: gathering programs and requirements, verifying programs, compiling courses, and coding the courses.

Gathering Programs and Requirements

We compiled a working list of U.S. institutions by combining the schools listed on the ATTW Web site, CPTSC Web site, and STC academic database; searching online using phrases such as “degrees in technical writing” (and various combinations of degree types, program names, and order) and scrolling through approximately ten pages of results to catch additional programs; cross-checking information from the Integrated Postsecondary Education Data System listing of degrees awarded; following list-serv discussions that pertained to programmatic and curricular questions; and combing through conference proceedings for mentions of new programs and changes to existing programs.

With the final working list of TPC programs, we gathered the most basic information about the degree such as its type (that is, BA/BS), the institutional entity that administers the degree, and the degree name. For degree requirements, we followed previous research (see Harner and Rich, 2005; Meloncon, 2009 & 2012) and gathered information on hours to degree and required and elective courses, including required courses outside of the department. We also gathered information about online degree programs, since online education continues to be a topic of conversation within TPC and all of higher education. The final piece of degree requirements data we collected was whether the institution required courses outside of the department. This particular component arose from the data as it was entered and was not initially something we were looking to include.

Using each institution’s catalog or bulletin that was posted online, we collected data that represent either academic year 2010-2011 or 2011-2012. We saved the catalog or bulletin that was the most recent at the time of data collection (verified in December of 2011), and used this saved copy for data analysis. As the official declaration of an institution’s programs and curricula,
the catalog serves as a quasi-legal contract between
the institution and a student. As a public record, the
catalog verifies and supports the legitimacy of the
academic enterprise: if TPC appears in the catalog, it
is a real category. Additionally, catalogs are a distinct
genre with similar characteristics that make finding and
comparing data easier (Frank, Wong, Myers, & Ramirez,
2000). As an institutional artifact, the catalog often
is archived either electronically or in the institution's
special collections. Having these long-term records
means our findings are based on documents that are not
transient (for example, department Web sites or program
checklists) and our research method is fully replicable
(going forward and backward).

Verifying Programs
Unlike previous studies where the author first coded
and then inter-rated the data (Meloncon, 2009 and
2012), in this study, each author independently verified
that the degree program was a TPC program. At the
program verification stage, our method is closely aligned
to previous curricular work, especially the Academic
Programs in Technical Communication series (Geonetta,
Allen, Curtis, & Staples, 1993; Kelley, Masse, Pearsall, &
Sullivan, 1985; Pearsall & Sullivan, 1976; and Pearsall,
Sullivan, & McDowell, 1981) and the follow-up to these
four texts, Keene's (1997) Education in Scientific and
Technical Communication: Academic Programs that Work.
The primary criterion in all five of these works, as well
as our own, is that the institution had to offer a TPC
degree in a general sense (Keene, 1997, pp. xi-xiv). This
means that the degree program includes a wide range of
courses that would be recognized as courses appropriate
for a TPC degree, for example, courses in technical
writing, courses that integrate technologies used in the
profession, and courses focused on genres common in
the workplace. In the case of disagreement or when
questions were raised, the authors worked together until
an agreement was reached.

Schools that offered general writings studies
programs were excluded from this study. For example,
several schools have degrees in writing and rhetoric
that they advertise as preparing students for careers in
technical writing, but an examination of their curricula
shows the degrees are, as the name implies, in writing
and rhetoric, not TPC. Other institutions that were
excluded were those with named degrees in “professional
writing” but a curricular focus in journalism or creative
writing, or programs that include only a few TPC
courses. In addition, we did not include schools that
offer specialized writing degrees that fall within the
larger category of technical communication. For
instance, we did not include degrees such as those
offered in science writing. While this type of writing
is clearly technical communication, our analysis, as with
previous curricular research, is on TPC degree programs
in the broadest sense.

Once we had a final, verified list of 185
undergraduate degree programs in TPC, we made
one of our most important decisions. Harner and
Rich (2005) reported curricular information on 80
“programs” and used program to include “majors,
minors, concentrations, emphases, tracks, and
specializations” (p. 210). As a result of the field's
growth, and/or our method of data collection, we
have data that enable greater precision in the analysis
of undergraduate degree programs. Thus, we split the
data set into two groups: institutions that offer a TPC
degree (n=65) and institutions that offer a degree with
an emphasis, track, or specialization in TPC (n=120).
The findings reported below are confined to the 65
undergraduate degrees in TPC.

Compiling Courses
Again, replicating the compiling and coding method
used by Meloncon (2012), our next step was to compile
all the courses offered. Courses were divided into
two main categories: required and elective. Required
courses, as the name implies, include those listed in
the catalog as required to complete the degree. The
required course listing is comprehensive. The elective
course category includes courses listed as possible
electives or encompasses groups of courses from which
students are asked to choose. The way programs
address electives varies: At one end of the spectrum are
programs that prescribe all courses to be taken in the
major (that is, there are no electives). In the middle
are programs that offer relatively few TPC courses and/
or provide a comprehensive list of electives, which
made data collection comparatively simple. At the far
end were large programs with a plethora of electives,
which required that we examine the entire list of course
Overview of U.S. Undergraduate Degree Programs

offering from the university catalog and agree on the inclusion and coding of courses that we had not previously identified under required courses. Thus, the elective category is representative of courses across the field, but it is not comprehensive.

Coding Courses
In the final step, we coded the courses. The process of turning course titles into quantifiable data involved coding each course by assigning it a general category. We used previous scholarship to establish a baseline for general coding categories (Harner & Rich, 2005 and Meloncon, 2009). General coding categories (see Table 1 in Results section) are descriptive categories that capture the main topic or goal of the course. We wanted codes that accurately classified the type of courses offered, while limiting the number of codes to generate meaningful data. We relied on course titles and accompanying course descriptions to assign a course to a category. For example, many institutions offer an introductory course, but those courses are often named different things. Thus, a “foundations of technical writing” and an “introduction to professional and technical writing” were both coded intro. This enabled us to quantify the number of institutions that offered a particular course. In some instances to capture as much specific information as possible, we found it necessary to use a primary and a secondary code. For example, we wanted to capture the different types of genres being taught. Coding a course as genre captured the quantifiable importance of learning different genres. Adding a secondary code enabled us to be more specific as to the type of genre course being offered. For instance, a course titled “Grants and Proposals” was assigned the primary code of genre and the secondary code of proposals. We provide additional information on the coding of top or “core” courses in our study in the Results section below. After we agreed on our code categories, we coded the courses separately, discussed differences, and came to a consensus. Our entire process from validating the schools to the coding of courses was a form of “collaborative coding” that “provides a means through which levels of expertise may emerge through the process of discussion in relation to data” (Smagorinsky, 2008, p. 402).

Results

Overview of Degrees in TPC
Our research found 65 TPC degrees at 56 institutions, which are broken down as follows:

- 34 Bachelor of Arts (BA)
- 31 Bachelor of Science (BS)

Nine institutions offer both BA and BS degree programs. Only three institutions offer fully online degrees.

Degree Location
Some scholars have argued “where a technical communication program is located within a university has profound impact on the nature of the program” (Davis, 2001, p. 19; c.f., Yeats & Thompson, 2010; Rentz, Debs, & Meloncon, 2010). The degree locations in Figure 1 reflect the name of the department or administrative structure that administers the degree. Previously, the term stand-alone or independent was used to demarcate that the degree was administered from a department or administrative structure that stood apart from English.

![Figure 1. TPC Bachelor’s Degrees by Department or Administrative Location (n=65)](image)

Note: The plus sign (+) indicates the addition of another term in the degree name, for example, Technical Communication and Rhetoric.
With numerous degree programs now administered in a variety of departments and college-level offices, more specificity was needed in understanding location.

**Degree Names**

Naming has had a long history within TPC. When performing the first analysis of degree programs and courses in TPC, Pearsall (1974) remarked, “Some 20 programs in Technical Communication (variously named) now exist” (p. 6). Since that time, naming has regularly popped up in the literature (Dobrin, 1983; Faber, 2002; Johnson 2007; Johnson 2009). Thus, we wanted to determine the “various names” used in TPC degree programs (see Figure 2 for an overview).

To visualize additional information about degree names, we show the percentage of programs that use Technical and/or Professional in their degree name, and the percentage that use Communication and/or Writing (see Figure 3). We found BS degrees are more likely than BA degrees to include the words Technical (45%) and/or Communication (81%) in their names, while BA degrees are more likely to include Professional (44%) and/or Writing (53%). In addition, there are four programs that use Rhetoric in the title of their degree, three of which are BAs.

**Credit Requirements**

Since all of the degrees are in TPC, we wanted to know how many credit hours were required to complete the major. In the United States, a credit hour is used as measurement for the amount of contact hours students should spend on a course. As a point of reference, the European Credit Transfer and Accumulation System (ECTS) is usually converted as half (4 ECTS=2 US credit hours). See Figure 4. More programs require 30-36 hours than any other category, and over half (66%) of the programs fall into the range of 30 to 42 hours. BA degrees require a more consistent range of credit hours, with 83% requiring 30 to 42 credit hours, while 52% of BS degrees fall within this range.
Overview of U.S. Undergraduate Degree Programs

Required and Elective Courses
Table 1 lists the required and elective courses for TPC degree programs. The percentages are based on the number of degree programs (n=65) that require the course or offer the course as an elective. In total, we examined and coded 636 required courses and 816 elective courses.

Table 1. List of Required and Elective Courses

<table>
<thead>
<tr>
<th>General course category</th>
<th>Required</th>
<th>Elective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced TPC</td>
<td>25%</td>
<td>12%</td>
</tr>
<tr>
<td>Basic</td>
<td>57%</td>
<td>26%</td>
</tr>
<tr>
<td>Capstone</td>
<td>57%</td>
<td>0%</td>
</tr>
<tr>
<td>Collaboration</td>
<td>9%</td>
<td>15%</td>
</tr>
<tr>
<td>Communication</td>
<td>17%</td>
<td>14%</td>
</tr>
<tr>
<td>Creative writing</td>
<td>5%</td>
<td>26%</td>
</tr>
<tr>
<td>Cultural</td>
<td>14%</td>
<td>38%</td>
</tr>
<tr>
<td>Document/information design</td>
<td>40%</td>
<td>29%</td>
</tr>
<tr>
<td>Editing</td>
<td>54%</td>
<td>18%</td>
</tr>
<tr>
<td>Ethics/law</td>
<td>20%</td>
<td>17%</td>
</tr>
<tr>
<td>Genre</td>
<td>40%</td>
<td>72%</td>
</tr>
<tr>
<td>Independent study</td>
<td>3%</td>
<td>20%</td>
</tr>
<tr>
<td>Intercultural/global</td>
<td>9%</td>
<td>18%</td>
</tr>
<tr>
<td>Internship</td>
<td>51%</td>
<td>32%</td>
</tr>
<tr>
<td>Introduction to the field of TPC</td>
<td>49%</td>
<td>0%</td>
</tr>
<tr>
<td>Journalism</td>
<td>15%</td>
<td>35%</td>
</tr>
<tr>
<td>Linguistics</td>
<td>29%</td>
<td>26%</td>
</tr>
<tr>
<td>Literature</td>
<td>6%</td>
<td>15%</td>
</tr>
<tr>
<td>Other</td>
<td>9%</td>
<td>23%</td>
</tr>
<tr>
<td>Persuasion/argument</td>
<td>14%</td>
<td>17%</td>
</tr>
<tr>
<td>Presentations/oral communication</td>
<td>25%</td>
<td>12%</td>
</tr>
<tr>
<td>Professional development</td>
<td>14%</td>
<td>3%</td>
</tr>
<tr>
<td>Project management</td>
<td>12%</td>
<td>6%</td>
</tr>
<tr>
<td>Publishing</td>
<td>3%</td>
<td>8%</td>
</tr>
<tr>
<td>Research methods</td>
<td>23%</td>
<td>15%</td>
</tr>
<tr>
<td>Rhetoric</td>
<td>32%</td>
<td>25%</td>
</tr>
<tr>
<td>Style/prose</td>
<td>6%</td>
<td>6%</td>
</tr>
<tr>
<td>Technology and tools</td>
<td>26%</td>
<td>26%</td>
</tr>
<tr>
<td>Theory</td>
<td>23%</td>
<td>26%</td>
</tr>
<tr>
<td>Topics</td>
<td>9%</td>
<td>48%</td>
</tr>
<tr>
<td>Usability</td>
<td>11%</td>
<td>8%</td>
</tr>
<tr>
<td>Video</td>
<td>6%</td>
<td>12%</td>
</tr>
<tr>
<td>Visual rhetoric</td>
<td>34%</td>
<td>28%</td>
</tr>
<tr>
<td>Web</td>
<td>45%</td>
<td>55%</td>
</tr>
<tr>
<td>Writing</td>
<td>31%</td>
<td>22%</td>
</tr>
</tbody>
</table>
Core Courses
Similar to Harner and Rich (2005), who identified the top five required and elective courses, we identified courses most often required by programs. We took the courses that were required by more than 40% of programs, and labeled these eight as our top or “core courses” (Meloncon, 2009), which are courses that suggest a commonality in U.S. curricula and indicate what courses TPC program administrators and faculty believe are necessary to earn a TPC degree. See Figure 5. In some cases, the general coding categories used to classify core courses are obvious (for example, editing), but because some are not as obvious, below we provide specific information about each core course code, and include representative course titles and descriptions from institutions’ catalogs.

Basic. Introductory courses to the practice of technical and professional writing and communication. In most cases, this course does double duty because it also is the “service course” for other departments. Our findings indicate 57% of programs require a basic course: 65% of BA programs and 48% of BS programs. Representative course titles and descriptions include the following:

- Technical Communication: Theories, principles, and processes of effective written communication of technical information. Attention to major strategies for analyzing and adapting to audiences in various communication situations and composing technical discourse including organizing visual and verbal information. Extensive practice in many areas of technical communication, including instructions and procedures, proposals and reports, website analysis and design and individual and team presentations. (Iowa State University, 2011, n.p.)
- Technical Writing: Theory and application of technical writing principles, culminating in the preparation of a research paper. Topics discussed include: definitions, instructions, processes, computer graphics and research strategies. Website evaluation and research, along with writing for the Web, are covered. Course concludes with an oral presentation of research paper findings. (Madonna University, 2011, n.p.)

Capstone. Courses which provide students the opportunity to bring together all their TPC courses into a singular cumulative experience. Usually required in the final term of the degree program, the cumulative experience offers another and more comprehensive way to assess students’ competency of the program’s curriculum through a demonstration of the knowledge and multiple skills acquired throughout their course of study. The most common forms this requirement takes are either a portfolio of work or a course that includes a portfolio of work or a project. Because these courses usually are titled “Capstone,” we coded all cumulative experiences as such. A capstone is required by 57% of programs: 62% of BA degree programs and 52% of BS degree programs. Example course descriptions include the following:

- Senior Portfolio: Professional Writing: Students work with a faculty mentor to revise and complete a portfolio of original professional writing. This portfolio is then presented to English faculty and other students. (Carlow University, 2011, p. 95)
- Capstone: Development of a professional portfolio, creation of a culminating document, and synthesis of undergraduate experience. (Arizona State University, 2011, n.p.)
Overview of U.S. Undergraduate Degree Programs

**Editing.** A general category for courses that focus on editing principles and practices. This category was the simplest to identify and code. An editing course is required by 54% of programs: 56% of BA programs and 52% of BS programs. Examples of course descriptions include the following:

• The Editorial Process: The process of editing from typescript through final proof. (Pennsylvania State University Berks, 2011, n.p.)
• Editing: Developing and applying principles of editing. Includes comprehensive editing (content, organization, forms, style, and visual design); sentence-level editing (clarity and conciseness); copyediting for correctness (grammar, punctuation, mechanics, and consistency); and preparing documents for publication. (Saginaw Valley State University, 2011, n.p.)

**Internships.** Courses that allow students to gain valuable work experience and apply what they are learning in the classroom in a working environment. Internships are required by roughly half, 51%, of all programs: 44% of BA programs and 58% of BS programs. The majority of degree programs award 3 credits hours for an internship completion. Following are sample internship course descriptions:

• Internship in Technical and Scientific Communication: Work-world experience within industry, government or the university in technical or scientific communication. Designed to allow students to incorporate field experience with the course work through internships in government, business, industry or education where they can observe communication processes and apply effective written, interpersonal, and public communication skills. (James Madison University, 2011, n.p.)
• Internship: Practical experience in writing or literary study. Prior application required. Prereq: submission of an academic portfolio, approved by the academic advisor. (Dakota State University, 2011, p. 221)

**Intro.** Courses that are an introduction to the field of TPC. Unlike the basic course, the intro course establishes the history and theories of the field, and then prepares students to produce or create professional documents. An intro course is required by 49% of programs: 50% of BA programs and 48% of BS programs. Example course descriptions include the following:

• Introduction to Professional Writing: Basic principles of rhetoric and composition applied to professional writing. Page design, definition of the field, research tools and practices, genres and convention, and professional style. (Michigan State University, 2011, n.p.)
• Introduction to Professional and Technical Writing: An introduction to the Rhetoric and Writing major and professional and technical writing theory and practice. (University of Arkansas at Little Rock, 2011, p. 97)

**Web.** An overarching term for courses that focus on providing students a background in creating content. We found 45% of programs required some type of web course: 41% of BA programs and 45% of BS programs. This category was the most difficult to analyze because of the many ways that the courses—and content—are approached. We created secondary codes to help classify these differences: production, write, multi-media, and content management.

In a Web/production course (63% of Web courses, required by 31% of programs), the emphasis is on the tools and technologies of content production. A Web/write course (21% of Web courses, required by 14% of programs) is a survey of practices or trends of “cybertext” or “writing in electronic spaces.” The focus is more on theory, less on production tools (that is, software and languages). A Web/multi-media course (9% of Web courses, required by 6% of programs) is similar to a Web/write course in its emphasis on theory; however, its focus is providing an introduction or overview of new and/or multi-media trends and theory. Students might be required to create online content; however, from the course description, such activity does not appear to be the primary focus of the class. The fourth category for Web courses is Web/content management. Similar to Web/production courses, Web/content management
courses (7% of Web courses, required by 5% of programs) emphasize the use of tools and technologies; however, in these courses the focus is content creation and reassembly—either print or online—and knowledge management. Following are sample course descriptions from each type of Web course:

- **Web/production.** Introduction to Web Design and Management: Presupposing only that students know how to use a Web browser, this course teaches beginning HTML, basic page layout and design principles, basic multimedia, and the structures of websites and also introduces students to WYSIWYG Web page generation software and FTP software. (Illinois Institute of Technology, 2011, n. p.). [Note that while management is in the title of the course, we did not classify this course as content management/web.]

- **Web/write.** Writing for the Web: An introduction to writing for the web, with emphasis on structure, tone, voice, usability and navigation. (University of Houston Downtown, 2011, p. 153)

- **Web/multi-media.** New Media Design I: Provides a survey of new media theory, applications, practices, and design principles. Students explore current communication technologies and trends. (Montana Tech, 2011 p. 224)

- **Web/content management.** Writing for Content Management: Concepts and practices of content management systems for the creation and production of technical communication both in print and online. Includes document workflow, globalization and translation of content for assembly of relevant document. Uses case studies and client-based projects. (University of Wisconsin Stout, 2011, n.p.)

While we assigned secondary codes to the courses based on the general description of the course, we realize there is considerable overlap in course content. For example, it would be highly unlikely that a course in content management would exclude information about writing or other production oriented aspects, such as the place of the navigation bar. The broad category of Web, however, does document the importance of both the “front-end” and “back-end” work of TPC.

### Document Design. Courses that focus on designing documents and information. These courses are generally a mix of theories of design principles and hands-on practice in creating different types of documents. Document design courses were required by 40% of programs: 32% of BA and 35% of BS programs. Sample course descriptions follow:

- **Computer-aided Publishing:** The development of the ability to write and design documents using electronic publishing technologies. Student will receive instruction in writing, graphics, and publishing software and will write, design, produce, and critique a number of publications. (Purdue University, 2011, n.p.)

- **Desktop Publishing for Professional Writers:** Graphic design principles and process. Strategies for integrating text and graphics. Workshop teaches desktop publishing program. Required laboratory. (San Francisco State University, 2011, n.p.)

### Genre. Courses that focus on specific TPC genres. One or more genre courses are required by 40% of degree programs: 35% of BA and 39% of BS programs. As with Web Courses, we sub-categorized genre courses: primary genre (67% of all genre courses, required by 28% of programs), specialized-other genre (21% of all genre courses, required by 12% of programs), and specialized-technical genre (12% of all genre courses, required by 8% of programs). Primary genre courses include instructions, proposals/grants, and reports. Specialized-other genres are business oriented (for example, public relations, government, or marketing). Specialized-technical genres courses generally are focused on a specific type of writing, such as medical or environmental writing. Following are sample course descriptions for the primary and sub-category genre courses:

- **Primary genre, instructions.** Documentation Procedures: Students learn to write instructions and explain processes in professional document. They review style, editing, desktop publishing skills, and the overarching importance of attention to purpose, audience, and task. (Farmingdale State College, 2011, n. p.)
Overview of U.S. Undergraduate Degree Programs

- **Primary genre, reports and proposals.** Professional Reports and Proposals. Preparation of professional and academic reports and publications through the use of communication analysis. (Lubbock Christian University, 2011, p. 163)

- **Specialized-other genre, marketing.** Technical Marketing Communication: Students will learn to create marketing materials for the technical industry from design to completion. (Cedarville University, 2011, p. 283)

- **Specialized-technical genre, environmental.** Writing for the Environmental Industry: This course presents communication models and techniques for reporting industrial and governmental information related to the environment for specialized and general audiences. The course includes discussions of ethical concerns related to environmental issues, analyzing the context of an environmental message for optimum reception, practicing different discourse strategies, and exploring readability for different audience levels. Students will examine the issue of credibility of statistical material, presented both in text and in graphic format. Researching the CFR database for specific regulations will be taught, with a secondary goal of revising these regulations for the targeted audience. (Metropolitan State College of Denver, 2011, n.p.)

In Figure 6 we summarize the breakdown of required core courses by degree type.

**Required Courses Outside the Home Department**

Requiring courses outside of the home department would suggest that programs are concerned with students obtaining a particular subject matter expertise in another area of study. We found 58% of programs require courses outside of the department either as a minor, subject matter focus, professional expertise, or similar term. Figure 7 illustrates the number of required hours outside the major for these programs. Of the degree programs that require hours outside the home department, 42% are BAs (47% of BA degrees in the study) and 55% are BSs (71% of the BS degrees in the study).

**Trends in Undergraduate Curricula**

In the discussion that follows, we compare our data, where appropriate, to that of Harner and Rich (2005). We understand that this comparison is not completely accurate or precise because, as we already have noted, there is a difference in the types of programs being compared. However, together the two studies afford a unique opportunity in the curricular history of TPC to show trends in the TPC undergraduate curricula. Even though TPC has historically gathered curricular data, the field has never had data precise and comprehensive enough to point to curricular trends. Harner and Rich’s study is based on data gathered in 2003. Thus, when their results are viewed next to the current data, the field of TPC can get a sense of what has occurred in the curricula from 2003 to 2011, a period of tremendous technological and communication change.
Degree Location and Distribution of BA and BS Degrees. In order visually to compare Harner and Rich’s (2005) findings with ours, we combined a few of our categories before placing the two data sets into a graph. For example, from our study, we grouped English, English +, and Language and Literature under the category English Areas. We then compared program location and distribution of degree by type.

Harner and Rich found the majority of programs were housed in English departments (60%). By combining degree programs housed in English, English +, and Language and Literature, we found 34% of degree programs are housed in the equivalent of Harner and Rich’s “English” category. The most significant gain (from 9% to 20%) is in the number of programs housed in Technical Communication Programs, which included one Professional Communication department, and the new category of Writing departments. Another increase (from 6% to 11%) was in the number of programs we classified as Other, which included those in Harner and Rich’s General Studies and Engineering categories. We also show slightly fewer programs housed in Communication departments. These findings reflect the on-going changes in the location and naming of programs.

Trends in Required and Elective Courses. Table 2 presents Harner and Rich’s required and elective courses next to our study’s required and elective courses. Because our study only included programs that offered a degree, not a minor or emphasis, this might account for the large number of course categories (15) that appear for the first time in our study. This latter issue also can be potentially explained by the growing maturity of the field and the need to provide a vast array of elective possibilities that match the interests of faculty and students, as well as changes in the professional field. The differences in course coding categories also can be attributed to differences in data collection. However inelegant the data comparisons, Table 2 (along with Table 3 in the following section) does provide the field its first opportunity to compare curricula over time and to highlight trends and changes. This is particularly important as the data highlight the basic skills (such as editing, writing, and a technological proficiency) that remain essential to technical communication, while also pointing to changes within the field (such as the growing emphasis on the visual).

“Top” Compared to “Core” Courses: Even though Harner and Rich (2005) did not use the phrase “core courses,” they did identify a set of courses that appeared most frequently in their data sets (p. 211 and p. 213). Historically, scholars consistently have praised the diversity of the field (for example, Keene, 1997; Killingsworth, 1999; Yeats & Thompson, 2010), perhaps this is due to an over-riding concern to neither constrain the field’s ability to adapt and grow nor limit its interdisciplinary nature. From this examination of curricula of TPC degrees, we note that TPC curricula are more defined than previous research has identified. Table 3 shows the top courses from Harner and Rich’s study compared to our core courses.

While all of the courses that appeared at the top in Harner and Rich’s survey appear in our study, there are some notable similarities and differences. We believe the technical communication course identified in their study (required of 78% of programs) is most likely the basic course in our study (required of 57% programs). However, Harner and Rich might have included in this category some of the courses we identified as intro, or
### Overview of U.S. Undergraduate Degree Programs

#### Table 2. Comparison of Required and Elective Courses 2005 to 2011

<table>
<thead>
<tr>
<th>Course</th>
<th>Required</th>
<th></th>
<th></th>
<th>Elective</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2005</td>
<td>2011</td>
<td>2005</td>
<td>2011</td>
<td></td>
</tr>
<tr>
<td>Advanced TPC</td>
<td>34%</td>
<td>25%</td>
<td>18%</td>
<td>12%</td>
<td></td>
</tr>
<tr>
<td>Basic/TC</td>
<td>78%</td>
<td>57%</td>
<td>14%</td>
<td>26%</td>
<td></td>
</tr>
<tr>
<td>Capstone</td>
<td>14%</td>
<td>57%</td>
<td>1%</td>
<td>0%</td>
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<tr>
<td>Collaboration</td>
<td>n/a</td>
<td>9%</td>
<td>n/a</td>
<td>15%</td>
<td></td>
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<tr>
<td>Corporate culture</td>
<td>3%</td>
<td>n/a</td>
<td>1%</td>
<td>n/a</td>
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<tr>
<td>Communication</td>
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<td>17%</td>
<td>n/a</td>
<td>14%</td>
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<td>Creative writing</td>
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<td>n/a</td>
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<td></td>
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<tr>
<td>Cultural</td>
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<td>14%</td>
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<td>38%</td>
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<tr>
<td>Document/information design</td>
<td>4%</td>
<td>40%</td>
<td>10%</td>
<td>29%</td>
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<tr>
<td>Editing</td>
<td>52%*</td>
<td>54%</td>
<td>14%*</td>
<td>72%</td>
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<td>20%</td>
<td>4%</td>
<td>17%</td>
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<td>Genre</td>
<td>32%*</td>
<td>40%</td>
<td>18%*</td>
<td>72%</td>
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<td>Independent study</td>
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<td>n/a</td>
<td>20%</td>
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<td>Interactive media</td>
<td>8%</td>
<td>n/a</td>
<td>10%</td>
<td>n/a</td>
<td></td>
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<tr>
<td>Intercultural/global</td>
<td>1%</td>
<td>9%</td>
<td>5%</td>
<td>18%</td>
<td></td>
</tr>
<tr>
<td>Internship</td>
<td>39%</td>
<td>51%</td>
<td>36%</td>
<td>32%</td>
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<tr>
<td>Introduction to the field of TPC</td>
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<tr>
<td>Journalism</td>
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<td>15%</td>
<td>6%</td>
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<td>Linguistics</td>
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<td>26%</td>
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<tr>
<td>Literature</td>
<td>see below</td>
<td>6%</td>
<td>see below</td>
<td>15%</td>
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<tr>
<td>Online information</td>
<td>11%</td>
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<td>3%</td>
<td>n/a</td>
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<tr>
<td>Other</td>
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<td>9%</td>
<td>n/a</td>
<td>23%</td>
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<tr>
<td>Persuasion/argument</td>
<td>n/a</td>
<td>14%</td>
<td>n/a</td>
<td>17%</td>
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<tr>
<td>Portfolio</td>
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<td>n/a</td>
<td>1%</td>
<td>n/a</td>
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<tr>
<td>Presentations/oral communication</td>
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<td>25%</td>
<td>n/a</td>
<td>12%</td>
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<tr>
<td>Professional development</td>
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<td>14%</td>
<td>n/a</td>
<td>3%</td>
<td></td>
</tr>
<tr>
<td>Project management</td>
<td>8%</td>
<td>12%</td>
<td>3%</td>
<td>6%</td>
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<tr>
<td>Proofreading</td>
<td>1%</td>
<td>n/a</td>
<td>0%</td>
<td>n/a</td>
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<td>Publishing</td>
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<td>3%</td>
<td>2%</td>
<td>8%</td>
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<tr>
<td>Research methods</td>
<td>18%*</td>
<td>23%</td>
<td>5%*</td>
<td>15%</td>
<td></td>
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<td>Rhetoric</td>
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<td>32%</td>
<td>n/a</td>
<td>25%</td>
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<tr>
<td>Style/prose</td>
<td>13%</td>
<td>6%</td>
<td>5%</td>
<td>6%</td>
<td></td>
</tr>
<tr>
<td>Technology and tools</td>
<td>20%</td>
<td>26%</td>
<td>5%</td>
<td>26%</td>
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<tr>
<td>Theory</td>
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<td>n/a</td>
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<td>n/a</td>
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<tr>
<td>Usability</td>
<td>1%</td>
<td>11%</td>
<td>10%</td>
<td>8%</td>
<td></td>
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<tr>
<td>Video</td>
<td>n/a</td>
<td>6%</td>
<td>n/a</td>
<td>12%</td>
<td></td>
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<tr>
<td>Visual rhetoric</td>
<td>29%*</td>
<td>34%</td>
<td>13%*</td>
<td>28%</td>
<td></td>
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<tr>
<td>Web</td>
<td>9%</td>
<td>45%</td>
<td>18%</td>
<td>55%</td>
<td></td>
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<tr>
<td>Writing</td>
<td>n/a</td>
<td>31%</td>
<td>n/a</td>
<td>22%</td>
<td></td>
</tr>
</tbody>
</table>

* indicates combined course categories
introduction to TPC. The decrease in the percentage representation also could be attributed to the diversity of recent course offerings and to the fact that many of the basic skills covered in this course could be divided and completed in other courses. In the 2005 study, advanced technical communication was required by 34% of degree programs, and currently is required of only 25% of degree programs. This decrease might be attributed to the adoption of specific course titles and descriptions as the field has matured over the last several years. For example, as program offerings increased, an advanced technical communication course could have evolved into one titled “Online Documentation.”

Editing and internships are the most similar in nature between the two studies in description or coding, but not necessarily in rankings. The high occurrence of editing in both studies (52% and 54%) can be attributed to the ongoing importance of editing to the work of technical communication, which is illustrated through its inclusion in job ads.

When compared to Harner and Rich’s findings, the number of programs requiring internships has risen from 39% to 51%, and the number of programs that do not specify anything about internships has decreased (from 25% to 17%). See Figure 9. The large increase for internships may be a result of programs understanding the importance of workplace experience for students and/or might be attributed to the inclusion in our study of only programs that offer a major (that is, not a minor or emphasis).

In an attempt to compare findings on genre courses, we combined Harner and Rich’s totals for advanced technical reports, instructional design, manuals, technical marketing communication, and technical reports into a single genre category. After doing so, we show genre courses were required by 32% of degree programs in their study as compared to 40% in 2011. However, again, this comparison might not be accurate. Our figures indicate how many programs require one or more genre courses: we identified 26 programs (40%) that required one or more genre courses. In contrast, by combining the totals from Harner and Rich’s study, we might be duplicating program representation (that is, one program could be requiring several of the courses represented).

While document design was not a general course category that appeared in Harner and Rich’s top five, visual communication was (required by 29% of programs). The courses included under this category could be equivalent to some of those we coded as visual rhetoric (required by 34% of programs in 2011) or they might have been coded in our study under document design. In either case, the requirement for courses in designing the visual aspects of technical communication has increased in importance in the last several years as witnessed by several categories that have an emphasis on

<table>
<thead>
<tr>
<th>Course</th>
<th>2005 (n=80)</th>
<th>%</th>
<th>Course</th>
<th>2011 (n=65)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical communication</td>
<td>Basic</td>
<td>78</td>
<td>Technical communication</td>
<td>Basic</td>
<td>57</td>
</tr>
<tr>
<td>Editing*</td>
<td>52</td>
<td></td>
<td>Editing</td>
<td>54</td>
<td></td>
</tr>
<tr>
<td>Internship</td>
<td>39</td>
<td></td>
<td>Internship</td>
<td>51</td>
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</tr>
<tr>
<td>Advanced technical communication</td>
<td>34</td>
<td></td>
<td>Introduction to TPC</td>
<td>49</td>
<td></td>
</tr>
<tr>
<td>Visual communication</td>
<td>29</td>
<td></td>
<td>Web</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>Production tools</td>
<td>20</td>
<td></td>
<td>Doc/info design</td>
<td>40</td>
<td></td>
</tr>
</tbody>
</table>

* Combined editing for publication and technical editing.
**Combined reports, manuals, instructional design, marketing communication into a single genre category to match the methodology of 2011.

Figure 9. Comparison of Internship Requirements from 2005 to 2011.
visual communication (for example, the requirement by programs for document/information design grew from 4% to 40%).

Harner and Rich’s category production tools (required by 20%) is not as easy to compare with the current data: production tools could easily be equated with the technology and tools category of our study, or it could include the tools for desktop publishing (document/information design) or Web production. Consequently, TPC’s current recognition that tools are important is reflected in multiple categories: technology and tools (required by 26% of programs, offered as an elective in 26%), document/information design (required by 40% of programs, offered as an elective in 29%), Web/production (required by 31% of programs, offered as an elective in 32%), and Web/content management (required by 5% of programs, offered as an elective in 6%).

Courses not represented in the top required courses by Harner and Rich, but present as core courses in 2011 are introduction to TPC, capstone, document design (discussed above), and Web. We found ourselves pleasantly surprised at the number of programs that offer an introductory course designed to introduce students to the field of TPC. It was heartening to see a concerted effort by programs to begin to establish a core set of scholarship that would “define” the field for students encountering it for the first time. The appearance of this course as a requirement indicates a further maturation of TPC as a distinct field.

When compared to Harner and Rich’s study, in which 14% of programs required a capstone, our data indicate a significant growth in the number of programs that require a capstone (required by 57% of programs). In addition, Harner and Rich showed a portfolio was required by 10% of programs and offered as an elective by 1%. We were hesitant to add these figures as there might be some overlap between programs; however, even if there were not, the capstone and portfolio data combined would indicate 24% of programs in the 2005 study required what we coded as a capstone, that is, 57% in 2011. This increase can be attributed to the growing assessment culture within higher education or it might point to the restriction of our study to degree programs (that is, not including minors or tracks).

In the 2005 study, Web courses were required by 9% of programs and offered as an elective by 18%. In addition, interactive media was required by 8% and offered as an elective by 10%, and courses in online information were required by 11% and offered as an elective by 3%. The interactive media category is parallel to our coded course Web/multi-media, and online information could overlap with any of our coded Web categories. We did not combine these findings under the general category Web for comparison purposes as, again, it is not clear how many programs were offering these various courses (that is, between 8-11% of programs were requiring one or more of these courses, but were 28% requiring one?). We do know, however, that in 2011, Web courses were required by 45% of programs and offered as electives by 55%. The jump in the document/information design and Web categories probably is not surprising considering the growing reliance on visual communication and Web delivery to the work of technical communication.

**Electives.** Harner and Rich had 29 course categories compared to the 35 in the present study. Our need to create additional course categories and/or adjust the original categories arose from the growing number of specialized courses across the field, which in turn is a result of the field’s better understanding of what curriculum is needed to prepare students. In 2005, the internship was the most popular elective, offered by 36% of degree programs. The second most popular elective course offerings were Web design, advanced technical communication, and genre courses combined, each offered by approximately 18% of programs (p. 213). By 2011, a number of elective courses had risen in popularity. In addition to genre (offered by 72% of programs) and Web courses (offered by 55%), we identified a great number of topics courses. Topics courses (for example, “Special Topics,” “Topics in Online Publication,” and “Topics in Technical Communication”) are offered by 48% of programs and can be employed to address the changing curricular needs of the field.

**Program Location’s Influence on Curricula.** Harner and Rich found the location of the program influenced the number and kinds of courses offered (p. 214). They found that English and Humanities departments required “the highest number of advanced literature” courses (p. 214). In their study, 61% of programs were housed in English, and they required up to 8 literature courses (p. 215). In our study, literature courses are required by 6% of the programs, much
lower than the previous numbers. Of the 4 programs that require a literature course, 3 are housed in English departments. Part of these findings could be attributed to the lower number of degrees being awarded out of English and Language and Literature departments, and part to the field’s insistence on requiring courses more directly related and relevant to a TPC degree. One of the hallmarks of studying literature is to expose students to a variety of perspectives and views, and while TPC degree programs may not require literature courses, they offer them as electives (15%). In addition, they offer a robust and diverse set of course offerings we coded culture (required by 14% of programs, and an elective in 38%), which included courses that require students to read, analyze, and critique work on the cultural implications of technology on society.

A second difference is that English and Language and Literature departments require more rhetoric and advanced writing courses, while Technical Communication departments require more design and visual-centered production courses. This difference could be attributed to the backgrounds and technical skills of the faculty. Technical Communication departments might have more faculty who can teach design and visual centered courses, while English and Language and Literature departments might have more faculty interested in teaching courses in advanced writing and rhetoric.

Other than these differences, we did not find a strong correlation between the department location and other areas of the curricula, that is, English and Language and Literature departments do not require substantially different courses than Technical Communication departments.

**Discussion**

**Degree Type**
One of the future research questions that Harner and Rich posed was “how do names of programs differ by location within the institution and type of degree?” All of the degrees named Professional Writing or Professional + are awarded out of English, Language and Literature, Humanities, or Writing departments. Over half (54%) of the degrees named using Technical are awarded out of Technical Communication/+ departments, with the remaining are awarded out of Humanities departments (17%), Writing departments (11%), and English departments (17%). The only substantial conclusion about names of degrees and locations is that English and related departments prefer the term Professional. A stronger correlation of names occurs in the type of degree.

While Farkas (2004, as qtd. in Harner & Rich, 2005, p. 215) believes that “the BS reflects a significant amount of coursework pertaining to science and technology,” our results do not support this assertion. Other than courses required outside of the home department, overall we found no significant difference in program requirements and curricula between the BS and BA degrees (refer to Figure 6). Even though BS degrees required more outside courses, the difference was not substantial enough to justify the “significant amount of coursework” championed by Farkas. This finding when read against Farkas’ assertion raises questions for the field. Should there be a difference between a BA and BS degree? If so, what should those differences be? This finding also raises the question about employers’ perceptions of the BA/BS, which also was a concern of Harner and Rich. What is the importance of the name of the degree, especially to stakeholders outside of the university? Do employers favor one type of degree over another? Additional research is needed in this area.

**Courses Not Highly Represented**
While not a direct criticism of programs, the low number of required courses in essential aspects of technical communication also warrants additional discussion and research, for example, research methods (23%), ethics (20%), project management (12%), usability (11%), intercultural communication (9%), and collaboration (9%). These areas are vital, even if covered through tight integration in a variety of courses. The problem with a study of this nature is that such integration is not visible through a textual analysis of course descriptions. For example, Harner and Rich’s course category corporate culture did not appear in our study. Corporate culture could be represented in project management, ethics, collaboration (all courses we coded specialized-other genre), or found in descriptions of other courses. While knowledge of business operations and culture has been reported as lacking for graduates of TPC programs (Whiteside, 2003; Wilson & Ford,
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2003), our data provide limited information on how degree programs are dealing with this lack, which appears to be problematic. How might programs better equip students with information on business culture and practices? If this information is being integrated into programs, how is it accomplished? These are areas in need of additional research.

What Occurs in the Classroom?
The field needs a better understanding of what occurs in required and elective courses. For example, take collaboration: what does collaboration look like in our courses? How is collaboration discussed in the multiple courses that include group projects? What do we mean when we incorporate and highlight collaboration in our classrooms? What theories or fields are we drawing from to teach collaboration? Are we teaching with outcomes that make sense for the workplace? We have few doubts faculty include collaborative components in courses, but the field knows very little about the answers to the questions raised here. These sorts of probing and in-depth questions are necessary to broaden and deepen the field’s understanding of the content of curricula.

We found interesting the large number of programs that required courses outside of the department. This requirement suggests that TPC programs take seriously the need for students to have additional technical skills or to obtain additional subject matter expertise. Usually, this type of requirement only can be stipulated for degree programs (rather than for certificate programs or minors). However, little is known about these requirements. In many cases, the information in the course catalogs was not descriptive. What types of courses outside of the department are students taking? Are they taking courses in one general area to gain expertise or are they taking courses in multiple areas?

In addition, Table 1 makes clear the popularity of topic courses, courses that emphasize the impact of technologies on culture (that is, coded cultural), and courses that focus on journalism and creative writing. Additional research is needed into what “topics” are being covered in topics courses, which are offered as electives by 48% of programs. More information is needed about the impact of technologies on both society and our curricula, as well as a better understanding of how these courses fit into the overall aims and objectives of TPC programs. And the large number of creative writing and journalism courses raises questions about what types of writing experiences are most beneficial for students in TPC.

As a form of experiential learning, internships provide students an opportunity to apply what they’re learning in the classroom to actual projects. However, as one of us is painfully aware, internship programs are notoriously difficult to manage and sustain. Thus, questions for the field include: What are best practices in managing internship programs? How do TPC program administrators handle common issues such as locating new internship sites? How can internship programs be expanded to match demand and stay sustainable in terms of high quality and management? Also, what are the best practices for starting an internship program? This latter question is raised because the field should be concerned that only roughly half (51%) of programs require an internship.

Additional research should focus on analyzing syllabi and talking with instructors to gain a better understanding of what happens in the classroom.

Theory Courses
A course category that did not appear in Harner and Rich’s (2005) study but did in ours was theory. Courses coded theory include a variety of courses in communication theories; in contrast, those coded rhetoric specify in the course title or description an emphasis on rhetorical theory. Rhetoric courses are required by 32% of programs and offered as an elective by another 25%. Theory courses are required by 23% programs and offered as an elective by 26%. A focus on theory, be it rhetorical or other, at the undergraduate level is often a subject of criticism, one that warrants discussion by TPC program administrators and faculty. In the case of “rhetorical theory,” in all its many guises, the question becomes should “rhetoric” be the predominate theory in TPC? Included in such discussions should be the necessity to make clear connections and distinctions between courses in theory and those with focus on practice or application, an observation we discuss in greater detail below.

Differentiating Course Titles
When we were coding courses, a question arose as to how the field differentiates course titles. For example, one set of courses that was difficult to differentiate
included courses in the design of print documents and those in the design of information or content (for example, text, visuals, or video) for multiple outputs and/or for reassembly. “Document Design” is becoming an antiquated, albeit still popular, course title. Even though “Information Design” is used by only a few programs (the term is used in two course titles coded document design and two courses coded Web), that title, arguably, is more applicable a description for courses in which the design of text, content, information, and/or graphics—for both print and online delivery—is the focus.

Similarly, the general course categories Web and visual rhetoric warrant additional research. Courses broadly coded Web include an array of approaches to the creation of online content: with a focus on theory, trends, software and languages, or content management. Courses titled “Visual Rhetoric” are as varied in content as those broadly coded Web. Courses coded visual rhetoric have as a focus on visual design and theory, and often are introductory courses. In this study, a course in which the course emphasis is software application and the creation and manipulation of graphic content (for example, “Digital Fundamentals and Imagery”) is coded technology and tools with a secondary code of visual. However, many courses with a technology focus do not necessarily address cutting-edge technologies. For example, only a handful of course descriptions specifically address XML, DITA, or single sourcing. Such findings raise additional questions about what technology and technical mean in the TPC curricula.

These differences in course content lead us to suggest that the field needs to discuss how we can better differentiate titles for courses with these different focus areas, perhaps by clearly marketing courses or using subtitle courses. For example, a theory course could be titled or catalogued as “Visual Rhetoric: Theory,” as compared to a production-oriented course that could be catalogued as “Visual Rhetoric: Specialized Technologies.”

Sustaining Program Quality
The questions that arise include asking in what ways can academics and practitioners collaborate to create, revise, and sustain academic programs? Further research needs to include the practitioners’ view on current practices and skills needed by new technical communicators. For example, in many cases, the capstone course requires students to complete a portfolio as part of the coursework, which raises the question, How do potential employers use electronic portfolios in the hiring process? What can programs do to ensure students are preparing professionally relevant portfolios? Moreover, how many programs are too many, and what considerations are being made to ensure qualified faculty are available to teach in degree programs (Meloncon, 2009 and Meloncon & England, 2011)?

Finally, the data and subsequent analysis suggest that some programs are closer aligned, perhaps have a clearer sense of purpose and outcomes, than others. Issues of programmatic quality and value have long been debated (Keene, 1997, p.183-196), and it is important that program administrators and faculty work toward creating and sustaining programs that meet local needs, but keep an eye toward field-wide trends and discourses. In this sense, field-wide encompasses both the academic and the professional fields, especially since the data and discussion also intervene in ongoing conversations about the professionalization of technical communication (Coppola, 2011 & 2012; Pringle & Williams, 2005) and what that means in preparing students for the new economy.

Looking Forward
TPC has experienced dramatic growth since the last overview and survey of U.S. undergraduate degree programs. From this examination of curricula of TPC degrees, particularly of core courses, we find TPC curricula are more defined than previous research has identified. The information presented in this report provides an update on the number of programs, the names and location of degrees, an overview of degree requirements, and an in-depth look at required and elective courses. The comparison between the findings from 2005 to 2011 provides the field the first detailed examination of trends over time. The subsequent discussion offers numerous questions and suggests additional areas for research. As faculty, we teach our students to be reflective, critical practitioners of technical communication. In a similar way, we hope these data and our analysis will encourage and challenge the field, academics and practitioners alike, to be reflective and critical of our curricular practices.
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About the Authors

**Lisa Meloncon** is an STC senior member and associate professor of technical and professional writing. Her main interest is in health, environmental health, and medical communication, and the impact of communication in delivering complex information to lay audiences. She also owns a technical communication consulting firm. Contact: meloncon@tek-ritt.com.

**Sally Henschel** is an STC senior member and serves as the Student Liaison for the STC Academic SIG. She is an assistant professor of English at Midwestern State University, where she teaches courses in digital rhetorics, online pedagogies, technical and professional communication, and information design. Contact: sally.henschel@mwsu.edu.

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Meggs’ History of Graphic Design

Make no mistake, Meggs’ History of Graphic Design is the gold standard of books on the subject. However, the updates for this edition were not limited to a simple addition of new information and images. Most, if not all, of the page layouts have been revised and updated, leaving few without at least one example image. While the prose is sometimes stuffy, the pictures represent hallmarks of design history. It is hard to flip through this book and not be inspired.

The book focuses on the developments that contributed to the progress of graphic design as a discipline. Readers unfamiliar with Meggs’ History of Graphic Design might be surprised that Meggs begins with prehistory and cave paintings. From there it is a quick run to the development of the book (something Meggs’ seems to give preference to) by way of the invention of writing and alphabets. But he’s not wrong to get to the book so quickly. The work of early graphic designers centered on print publications like books and broadsheets. Following the development of the book came developments in page layouts and typography, which led to technologies like the printing press and movable type.

The way Meggs presents the information feels like early graphic designers were only working toward the book. From there graphic design began to branch out from that central development. Branches include typography, which included such areas as typeface design and methods of producing those typefaces, work on the printing press, and a focus on papers and inks. A noticeable theme in each of these branches is the assumption that graphic designers produce for the masses. By extension, it means that further developments in these areas made mass production easier to accomplish.

If I have one quibble with the book, it is this: It does not readily acknowledge the influences of artistic trends until we get to the arts and crafts movement in the last decades of the 19th century. Innovations in the arts happened concurrently with innovations in graphic design and no doubt influenced one another. That said, I understand why Meggs omitted this relationship: the book is already an encyclopedic survey of design history, and art history has already been thoroughly covered by scores of other authors. This volume focuses on what is unique to graphic design as a discipline and profession. As such, this is important reading so that designers “have a historical knowledge of their vocation” (p. vii), understanding where the field has been, and where it could be headed.

Spencer Gee
Spencer Gee holds a Master’s degree in Composition and Rhetoric and teaches Freshman Composition at the University of Central Oklahoma. He also is working toward a degree in Graphic Design.

Globish: How English Became the World’s Language

That English has become the lingua franca for the world’s business, entertainment, research, and the like has become a cliché. But, teaching and learning English has become big business. Langenscheidt, the German dictionary company, published a 120-page catalog in 2012 devoted to teaching and learning English. On the first 12 pages alone, they list over 100 titles.

So, why the commercial interest? Robert McCrum cites the British Council’s prediction that “by 2020, nearly a third of the world’s population will all be trying to learn English at the same time” (p. 276). McCrum’s own answer is the rapid expansion of the British Empire in the 18th and 19th centuries. In Globish: How English Became the World’s Language, he traces the origins of English from an obscure dialect on a tiny island to its prominent place in the world today.
The audience for his story is similar to the audience for *The Story of English* that he co-wrote with William Cran and Robert MacNeill. It is a general audience rather than an academic specialty audience, and McCrum’s style reflects that. He tells us the story without the interruption of numerous footnotes and in a language and style that is easily accessible. For those who want resources for his assertions, he includes extensive notes at the back and a bibliography.

McCrum divides the 15 chapters of his story into 5 parts beginning with the origins of English and ending with what he calls the “Globalisers.” Along the way, we learn about how and why Anglo-Saxon becomes Middle English that becomes modern English and how the British Empire exported not only military conquest but also cultural conquest through its language. McCrum’s purpose, then, is to provide a “biography of a phenomenon, one that is both simple and unique” (p. 14).

“Globish” of his title is a term coined by Jean-Paul Nerrière in 1995 (p. 11) as a general term for all the multitude of local versions of English: Japlish, Singlish, Hinglish, Franglish, among others and some 61 different English creoles (with 200 million speakers). McCrum argues that it is the street culture rather than court or cloister culture that accounts for its spread. Following World War I, the cultural center shifted from Germany and France to England and after World War II to America, principally through American film. After the Berlin wall fell, English became the language of government, companies, rock-and-roll, and royal decree. Also of importance to the spread of English were the UN, NATO, and the IMF.

**Globish** is highly simplified, has no real grammar or structure, and is comprehensive with a “utilitarian vocabulary of some 1,500 words” (p. 11)—similar, but not as rigid, as Simplified English.

For those wanting a readable history of English as a world language, **Globish** is an excellent place to begin. McCrum’s style is light and easily followed, and for the price, the book is a great bargain.

**Tom Warren**
Tom Warren is an STC Fellow, Jay R. Gould Award for Excellence recipient, and professor emeritus of English (technical writing) at Oklahoma State University, where he established the BA, MA, and PhD technical writing programs. Past president of INTECOM, he serves as guest professor at the University of Paderborn, Germany.

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**Thinking with Type. A Critical Guide for Designers, Writers, Editors, & Students**

*Thinking with Type* follows the example of Jan Tschichold’s extraordinary survey of modernist design and asymmetric typography principles in *Die neue Typographie (The New Typography)* to present a theoretical and practical introduction to the fundamentals of typography and its uses in modern design. In author Ellen Lupton’s words, “This is not a book about fonts. It is a book about how to use them” (p.13).

The book is divided in three sections of Letter, Text, and Grid, plus an appendix covering punctuation, editing, and proofreader’s markup language. The text progresses from principles of typefaces, to rules and aesthetics of typographic communication for text designs, page grids, and page designs offering a fundamental education in types, their use, and application in contemporary design.

Each section begins with an essay that, in turn, details the history and development of fonts, rules of text design, and the use of grids in page designs. Lupton’s knowledge, teaching experience, and wit are evident in the quality and depth of the essays, the well-chosen illustrations, and her often-humorous sidebars elucidating “Type Crimes” like the sin of vertically stacked neon type, though perhaps this received too much space at two pages.

The Letter essay presents a thorough, concise history of the development of writing from Chinese movable types of the tenth century to Gutenberg’s movable types, and the evolution of font designs from Nicolas Jenson to digital fonts spanning Wim Crouwel to Zuzana Licko and beyond. The section covers the evolution of typeface designs, font classifications, anatomy, nomenclature, basic rules of punctuation, use of capital and numeral styles, as well as font licensing and includes select exercises in type design.
The Text essay traces the evolution of text from fixed and stable manuscripts of the printed word to downloadable, linked, and fluid online texts, and addresses Marshall McLuhan’s, Jacques Derrida’s, and Roland Barthes’ and other theories of text readings and design interpretations that emerged in the late twentieth and early twenty-first centuries. Lupton uses the essay text itself to demonstrate alternate design structures for reading texts. The Text section addresses kerning, tracking, alignment, hierarchy, leading and paragraph styles—though here the small format limits the ability to see the text formatting examples in detail.

The Grid essay is a well-illustrated presentation of page designs from the fifteenth century to the present. Lupton’s examples of single column to varied multi-column and modular grids illustrate text as ideas as both fixed and fluid form in page design. Throughout the book, Lupton used a grid design that enables the placement of quotes and captions on the page that, in themselves, illustrate an effective fluid design interpretation that all students should find useful.

Thinking with Type illustrates the objectives of typographic design as a modern visual language approachably and is a valuable tool for the education of design practitioners and students alike.

Stephen Goldstein
Stephen Goldstein is an assistant professor in the Communication Media Department at Fitchburg State University with more than 25 years practicing graphic design. He is a contributing writer to Meggs’ History of Graphic Design (5th ed.), an editorial committee member, and has been published in Baseline Magazine, Novum, IdN, and other publications.

How to Write Reports and Proposals

How to Write Reports and Proposals by Patrick Forsyth is a comprehensive primer that does exactly what the title states: help businesspeople write better reports and proposals. Unlike the text in many business books, Forsyth does not either assume that the reader knows nothing about writing reports, or work on the assumption that the reader is already an expert writer who is looking to polish their writing. Instead, he finds solid middle ground by taking the reader systematically through the key aspects of report writing and includes useful tips and tricks for making the report or proposal successful.

It is difficult to choose which sections are most valuable because different readers will take away different aspects of the book. However, as an instructor, I found the chapter on “The Power of Writing” (p. 59) to be particularly useful. It can be difficult to impress on students the need for clarity and reader-centeredness in business writing, but Forsyth outlines the importance of these aspects in a manner that is engaging and easy to read. As I read this section, I found myself taking copious notes about integrating Forsyth’s ideas into my current lectures. The section on “Mistakes to Avoid” (p. 72) serves as a useful checklist for eliminating common grammatical, syntactical, and style errors before the report reaches the reader’s desk.

The “Dealing with Numbers” chapter is another notable reference for students and professionals alike. Too often, writers get bogged down in the details when they discuss budgets and numerical data, and they forget about the reader who must make sense of the numbers. Forsyth offers valuable advice for using tables and graphs, as well as how to integrate complex figures into the report or proposal without overwhelming the reader.

Forsyth’s writing style encompasses his advice for writing reports and proposals: it is clear, direct, and reader-oriented. He breaks the text down into logical headings and subheadings, and bulleted lists summarize the key points at the end of each chapter. Examples of
real-life business situations illustrate the key concepts, as well as capture the reader’s interest.  

*How to Write Reports and Proposals* is suited for many potential audiences. This book would be a useful and informative reference for graduate students pursuing an MBA or a master’s degree in technical writing. Businesspeople and technical writers working in the corporate world would be the most logical audiences for this text. Practitioners of technical writing will find *How to Write Reports and Proposals* useful because most of the book’s advice can also be applied to grants and technical reports. Additionally, Forsyth’s book would appeal to readers like me, instructors of business and technical writing courses.

Nicole St. Germaine-McDaniel
Nicole St. Germaine-McDaniel is an assistant professor of technical and business writing at Angelo State University, as well as a freelance health and legal writer. Her research interests include technical communication for a Mexican-American audience and technical communication in the health fields.

Clear and Simple as the Truth: Writing Classic Prose

“Style,” the Reverend Samuel Wesley tells us, “is the dress of thought ….” This 18th century aphorism nearly summarizes *Clear and Simple as the Truth*. Francis-Noël Thomas and Mark Turner argue for a return to classic style in writing instruction. They point out that while there are many books and articles on style, they fail to provide the kind of instruction that leads to a classic style of writing.

These books include various style manuals such as *The Chicago Manual of Style* and others that address consistency problems for specific writing situations. A second group also addresses specific problems, but they are meant for a much wider application. Chief among these is Strunk and White, and, I might add, various usage guides. The last group focuses on revision and editing and includes Williams and Colomb.

The main objection to all three groups is that they address only the surface features of text. And that takes us back to Wesley. Of the two items mentioned, the focus in classic style should fall on “thought” and not “dress” as it does in the current texts.

Classic style starts with truth—not “the” truth, but “a” truth. Once the writer recognizes the truth of an observation, he or she can then focus on what is unique about it and help the reader also observe it.

Thomas and Turner divide *Clear and Simple as the Truth* into three main sections: A long essay on what classic style is and why writers need to know about it, annotated examples of the classic style, and exercises to help writers develop a classic style.

Classic style prose assumes that writer and reader hold a common set of perceptions and values and that the writer calls attention to some aspect of the truthful observation that the reader may not have foreseen. The resulting text is devoid of hedges, most metadiscourse and modification, and other “dress” elements. The writer “may speak with a technical mastery not possessed by the reader, but [the writer’s] attitude is always that the reader lacks this mastery only accidentally” (p. 45).

For technical communicators, classic style runs counter to many of the precepts used to produce clear communication of technical information. For example, the classic style author does not do audience analysis to determine what the audience needs to know and especially how to help the reader to understand. Nor is classic style used to persuade.

Yet, this book has value for the technical communicator who has an interest in style, and teachers who teach style in their classes. Thomas and Turner are right about the current crop of books that essentially ignore this way of writing, and their discussion of styles can be valuable to a fuller understanding of the relationship between thought and dress.

Tom Warren
Tom Warren is an STC Fellow, Jay R. Gould Award for Excellence recipient, and professor emeritus of English (technical writing) at Oklahoma State University, where he established the BA, MA, and PhD technical writing programs. Past president of INTECOM, he serves as guest professor at the University of Paderborn, Germany.
Promote Your Book: Over 250 Proven, Low-Cost Tips and Techniques for the Enterprising Author


Ever written a book or thought about it, but didn’t know where to go regarding promotions, sales, and tours? Patricia Fry’s *Promote Your Book* is an all-encompassing book that provides you with helpful hints and tips on how to promote your book, as well as provides formulas for you to follow starting with the initial stages of book development to selling your book in retail stores. From reading this book, we learn that promotion is important and the key point to any successful book launch or sales. Without it, you have just created another book to sit on the shelf waiting to be read.

What I liked the most about Fry’s book is the guidance she provides with extra information sources that she created or with which she is involved. Although the book doesn’t bombard you with too much information, Fry ensures that the information she shares is substantial, relevant, and to the point.

It would be fair to say that the days of finding a publisher to do all this work is dying out. Using social media to promote your book is the new way of getting noticed and getting the word out there.

Fry breaks *Promote Your Book* into twenty-four information-rich chapters that aid in the first steps of starting your book to finally being thankful to those who helped along the way to becoming the expert in your field of knowledge. She looks at other ways of increasing book sales by making audio recordings of the book for the blind and the busy. This is another great way to get your book out there.

Writing a book is not as simple as sitting down and penning away a potential best seller. These days you have to start with a proposal.

*Promote Your Book* is essential for any author. It’s like having one handy reference book to guide you to other resources, provide concepts, and serve as a workbook. What I find interesting is that Fry isn’t just telling you what she would do, she shows you what herself and others have tried and where they succeeded and failed.

Julie Kawano

Julie Hazmoon Kawano has a BA in Media Studies. She spent three years teaching English to Japanese students in Japan. Now back in Australia, Julie spends her spare time reading books and doing Web-based reviews.

Information and the Modern Corporation


*Information and the Modern Corporation* provides an overview of information in the corporate world for those unfamiliar with a corporate setting or who are returning after a long hiatus. If you have worked in a corporate setting within the last five years, I recommend a different read.

An early quote by Cortada accurately describes the sequence of content: “People collect, analyze, and use information to do their work, to gain insights, to make more informed decisions, and even to share those roles and decision-making capabilities with machines, some of which are computers and some of which have computers built into them” (p. xi). The first third of the book defines data, information, and knowledge, and how to manage it in a corporate setting. The second part discusses how various corporate processes use information. The last third of the book provides a high-level overview of information systems and the future of information in a corporation.

Chapters 1 and 2 focus on understanding the difference between data, information, and knowledge, and how to manage knowledge. Data are facts such as numbers. Information says something that the data cannot say alone. Finally, knowledge is the combination of data, information, and experiences that create direct or indirect connections or observations about data. Analytics are increasingly used to understand
information to create knowledge and improve decision-making. Analytics are the systematic “fact-based understanding of how processes work” (p. 14) and how those processes perform. Cortada notes that information and knowledge are a company’s most important assets that are managed improperly.

Chapters 3 and 4 discuss the role data, information, and knowledge play in the various processes of the modern corporation. A combination of corporate processes can refer to a company’s supply chain. A supply chain is a “sequence of activities that are coordinated in order to make and sell a product or to provide a service” (p. 34). Large amounts of data and information are used to streamline supply chain processes, and knowledge and wisdom are used to create an efficient supply chain. Cortada also discusses how information is used to create and market new products. Corporations use information to implement “the next big idea” regarding a new product, understand who and how to market a product, and how to build relationships with customers.

Cortada summarizes the future of information and the modern corporation: “The modern enterprise has been undergoing significant changes in the past 30 years, and it is just now entering a new phase of evolution that can best be summarized with the biological metaphor of an ecosystem of systems comprising partners, firms, and supply chains” (p. 101). The adage, knowledge is key, is still the case with the modern corporation. With better technology, corporations will continue using information to compete in an increasingly complex world.

J.A. Dawson

J.A. Dawson is a PhD Candidate in Technical & Professional Discourse at East Carolina University. His research interests include professional communication and social change within a global context.

Design School: Extraordinary Class Projects from International Design Schools


Authors Steven Heller and Lita Talarico write in their introductory comments that “in the annals of design pedagogy, a few seminal projects stand out, usually associated with preeminent teachers” (p. 6). It seems to be their aim with this book to show design projects that, while not taught by someone famous, are nevertheless extraordinary. And the best projects, according to the authors and the design instructors polled on this topic, should do three things: challenge, inform, and elevate the student. From a pedagogical standpoint, it can be a daunting task to create projects that achieve these goals, but perhaps this is something else the authors hope to accomplish with this book: to give other instructors ideas for equally extraordinary projects that produce these results. To that end, the book is principally a showcase of extraordinary projects that successfully met these objectives.

There are 53 projects included, each coming from a different school of design. Assignments range from working with typography to creating posters for social causes to imagining transportation in a world without oil. Each project includes the project statement, and in many cases, short paragraphs from the students about their work. The projects really are extraordinary. Flipping through the pages, it is obvious that the students have responded favorably and risen to the challenge placed before them. No doubt hours of work went into each project. As the authors indicate, the best design projects will make students want to devote that time to creating the best response to the assignment that they can.

There’s a delicate balance to be struck here between breadth and depth. The book definitely has breadth. Fifty-three projects from 53 schools. However, that is a lot to cover in just over 200 pages, and I found the depth somewhat lacking. The project descriptions often
read like assignment sheets, which in my experience are intentionally somewhat vague so as to require some interpretation on the student’s part. It might have been beneficial for instructors who approach this book as a resource for assignment ideas to have project descriptions that at least included what the instructors were hoping to get out of the students. It also would have been helpful to have greater depth in what the students wrote about their projects, thus making it easier to understand how they were interpreting the assignment given them.

Instructors looking for assignment ideas should approach this title understanding these limitations. Even with these limitations, Design School is a good resource, perhaps even a valuable one, for creating extraordinary design projects that are challenging, informative, and elevating.

Spencer Gee
Spencer Gee holds a Master’s degree in Composition and Rhetoric and teaches Freshman Composition at the University of Central Oklahoma. He also is working toward a degree in Graphic Design.

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**Cracking the New Job Market: The 7 Rules for Getting Hired in Any Economy**


Books about job hunting and résumés are abundant, yet when I saw “Foreword by Barbara Ehrenreich” on the cover, I wanted to read more. Ehrenreich is author of *Bait and Switch* (Metropolitan Books, 2005), a book that decries the exploitation of unemployed white-collar workers. Her concerns led Ehrenreich to found United Professionals (UP), and Bill Holland—a career-management consultant and former human resources manager—became its president. About Holland, Ehrenreich says that he “has a…sophisticated understanding of what is happening in the job market and what to do about it on a personal level” (p. x).

Holland gives advice about demonstrating your value to potential employers by laying out practical techniques for doing so. Identify the key items that the hiring manager is looking for, then organize your job application and interviews around those items. The key items point to what the company is willing to pay new employees to do (the value employees must create). Highlight aspects of your experience that show how you have created such value in other jobs. Holland assumes that you can mine job ads for those key items. As technical communicators know, the people writing the high-technology job ads often have little idea what hiring managers are looking for, so work is needed to find the key items.

Holland believes in using social media. He notes the standard advice about the “hidden job market” (p. 74) being available only through face-to-face networking, but says that the statistics cited to support that advice are unverified. New rules apply to the world of social media, where weak ties are just as effective as strong ones. A LinkedIn chain, leading to someone you hardly know, can bring essential information about potential jobs.

Rule #4 of Holland’s seven rules is that interviews are “about the value you demonstrate” (p. 103). In applying for the job, you align your résumé with the value the employer wants you to create. Prepare for the interview by reviewing that alignment and learning...
everything you can about the company. You can’t memorize an answer for every possible question. Yet if you relax, you can bring whatever comes your way back to the question of the value you can create.

Holland devotes a chapter to women who take career breaks. In essence, continue professional activities, and stay up to date. He also has advice for young people choosing a career and for their parents. Many colleges don’t help students prepare effectively for careers. Any major can lead to a job, but not all majors lead to a marketable education. Good jobs need critical thinking, complex reasoning, and skill at written communication. Parents should not wait four years to see how college works out, but should help their children assess their own progress annually.

Richard Mateosian

Richard Mateosian is an independent technical writer in Berkeley, CA, specializing in documentation for programmers. He has written the “Micro Review” column in IEEE Micro since 1987. He is an STC Fellow and has volunteered in many capacities for STC.

100 Ideas that Changed Graphic Design


Many design paradigms we take for granted were radical notions for their time, even if many now seem painfully conventional. In this short, punchy book, Heller and Vienne remind us of a century (pun intended) of game-changers, neatly capturing the passionate ferment and petty feuds that have characterized the evolution of traditional, modern, and postmodern design. Like so many graphics books, this one is all about the graphics; it’s printed on luscious paper, with high printing quality throughout. Books, the authors note, are “not neutral containers, but stages upon which words and images performed” (p. 8).

Unfortunately, words are mostly treated as spear-carriers in an opera, with the designer’s narcissistic diva taking center stage, privileging esthetics and difference, and trivializing readability. The belief that the designer, not the audience, decides what works seems never to change, and the lack of any serious discussion of how text and graphics should work together is thus not surprising. Some of the 100 innovations nonetheless satisfy our desire for more efficient communication. Changes that improved communication include Letraset (the ancestor of modern dingbat and computer fonts), which made ornamentation available to even fumblefingers like me, and ornamentation “to illuminate rather than obscure content” (p. 30). In that context, it’s surprising the authors have misunderstood Beatrice Ward’s (in)famous “crystal goblet” speech (p. 63), in which she emphasized the need for design to support rather than conceal the content.

Unfortunately, consistent with that error, most of the book’s examples represent changes that were at best neutral and that more often emphasized the goblet over its contents, a problem that surely deserved its own entry in the top 100. No top-100 list will satisfy everyone, but there are egregious omissions: mathematics-inspired graphics (Escher, Penrose), data graphics (whether in science or in the news media), photography versus illustration (degrees of abstraction), and Photoshop. In fact, digital design gets only a few passing mentions, despite its overwhelming impact on modern graphic design.

The layout is compromised by tiny type and an arbitrary limit of three graphics per topic, making it difficult to understand some design references if you aren’t a design scholar. Still, what’s present shows an impressive range of creativity. Despite the abovementioned flaws, the book is a feast for the eyes, with full-color, full-page images on every spread. The text does a good job of explaining the authors’ choices and their impacts. As a survey of the many changes in graphic design and the dialogs between competing schools of thought, 100 Ideas is an entertaining, often insightful read. Just don’t look for lessons in how to communicate words more clearly, other than by inverting some of the 100 principles.

Geoff Hart

Geoff Hart has worked with many graphic designers over the years, and finds it easier to establish peace between cats and dogs than between writers and designers.
Book Reviews

Brand Atlas: Branding Intelligence Made Visible

As concerns for consistency and effectiveness of branding programs continue to permeate all types of organizations and all types of communicative efforts, technical communicators have to stay in the loop. They have to ensure that the information they produce reflects the brand, of course, but they should also begin to consider their role in brand development. Brand Atlas: Branding Intelligence Made Visible helps by providing an overview of brand-related topics so that anyone at any organizational level can understand the importance, the purpose, and the process of branding. Much like a geographic atlas, Wheeler and Katz’s book is a collection of short descriptions and visual representations of branding fundamentals.

Organized into three parts, the book leads readers through the critical considerations of branding within a contemporary marketplace, the fundamental components of a brand, and the management of and maintenance of a brand. Each page introduces a new concept, provides evidence for its importance, and makes practical recommendations. Each concept is accompanied by a sidebar of insightful quotations from business leaders and authors as well as a full-page visual representation of the concept.

Part 1, “Dynamics: Brand Landscape,” discusses consumer expectations and market trends that shape the way an organization defines itself. Entries include social networks, transparency, sustainability, and conversation, where the authors encourage companies to respond “with a human voice, not a packaged message” because “the consumer is no longer a faceless statistic in a report” (p. 20).

Part 2, “Intelligence: Brand Basics,” covers a myriad of fundamental branding concepts that all seem to resonate with the same core mantra: Know who you are as a company. Concepts like vision, purpose, stakeholders, and brand architecture all encourage readers to discover the essence of their organizations.

Part 3 gets a little more practical through topics that discuss the considerations of maintaining an effective brand. Concepts like culture, collaboration, insight, and customer service encourage an almost user-centered approach to brand maintenance.

The book could be even more helpful if it linked all these concepts in some big-picture way. Even geographic atlases explain how the parts of the world fit together, yet not so in the Brand Atlas. While the authors’ goal was to distill the core of brand research into this book, some synthesis of that information is necessary to fully grasp its importance and purpose. Furthermore, while the visualizations (what the authors call “diagrams”) are creative and often informative, I was frustrated and confused when some of them reference terminology and create visual relationships that are not discussed within the text.

Overall, Brand Atlas provides useful explanations of concepts for a technical communicator or manager who just needs to understand branding basics. Consultants or small companies may also find it useful as a beginning reference to differentiating themselves from the competition. But, it is not (and was not meant to be) a big-picture explanation of how branding works on a larger scale.

Matthew R. Sharp
Matthew Sharp is a PhD candidate in the Department of English at Virginia Tech. He has more than a decade of experience as a professional writer and teacher, with research interests in rhetoric, structured authoring, and marketing communication.
Effective Time Management: Using Microsoft® Outlook® to Organize Your Work and Personal Life


People who will be interested in reading and using *Effective Time Management: Using Microsoft® Outlook® to Organize Your Work and Personal Life* are in three categories: those who are already well-organized in both work and home lives and seek a tool to squeeze more productivity out of each day; those who are mostly organized yet find that their systems break down too often; and those who are overwhelmed and seek a tool to begin building a system to change their lives.

This book is for the first two types of people Microsoft® Outlook®, as explained in this book, allows one to effectively set up and execute plans, fulfill commitments, and outsource (to Outlook) the sorts of things at which a computer program excels: visual and audio reminders, calculations of task completion, and clear presentation of the plan put into place by the individual. While the book subtitle says Outlook is a tool for both work and personal life, this reviewer believes strongly that Outlook is primarily a work-useful tool.

The authors’ initial chapters address the overall problems of too much to do, not enough time in which to do it, and the need for a tool to effectively plan and execute. The middle chapters review the tools offered by Outlook; the final chapters review what’s been presented and how to continue to use Outlook as an organizational method. The book’s two strengths are its clear presentation of Outlook’s sometimes hidden options, such as grouping categories, creating Action Lists, and using Time Protocols to track time spent on various projects; and its well-structured “You Try It” end to each chapter. Each chapter also reviews general time management problems with which most readers will already be familiar. *Effective Time Management* is also the sort of book to keep: re-reading it every six months will remind the reader of Outlook tools (such as OneNote) not put into place after the first reading.

Will *Effective Time Management* create order out of chaos? No. Does it provide a useful explanation of a tool that will allow a reader to usefully structure work tasks and fulfill responsibilities? Yes, most definitely.

Laurel van Driest
Laurel Van Driest is an accomplished writer and editor, working in fields such as sports publications, music promotions, sustainable energy engineering, and mining. Her usual tasks provide the invisible infrastructure that allows others to do their jobs more efficiently and happily.

Designed for Use: Create Usable Interfaces for Applications and the Web


In the introduction to *Designed for Use*, author Lukas Mathis captures the essence of his book in one sentence: “The best product is of no consequence whatsoever if people don’t use it” (p. xv). While this message is intended primarily for interaction designers and programmers, *Designed for Use* is essential reading for anyone who has a stake in ensuring that product design supports the best possible user experience.

Mathis organizes the book into three main sections, each of which represents a key phase in the design process:

- **Research** discusses various methods for conducting user research, including on-the-job shadowing and persona creation. This section promotes an activity-based focus, where research emphasizes how the product can solve problems, rather than how it can cater to individual users.
- **Design** focuses on prototyping, testing prototypes, and designing based on the results. This section digs into specific design considerations such as visually representing state changes, avoiding feature bloat, and taking cues from video games.
- **Implementation** emphasizes usability testing and its many considerations. This section covers test
preparation, common testing mistakes, data collection, and user feedback. Product managers will appreciate the emphasis on simplified, low-cost testing.

Two types of chapters comprise each section. *Technique* chapters (identified by a cog icon) provide concrete details about how to effectively design truly usable products. These chapters begin with a timeline that shows where in the design process that technique is commonly used. *Idea* chapters (identified by a light bulb icon) explain the concepts behind effective design techniques, with examples based on supporting research.

The book itself is even designed for use. Technical communicators will appreciate the consistently structured chapters. Headings in introductory sections are often written as questions, such as “What’s the Technique?” and “Why Is This a Good Idea?” When appropriate, a “Further Reading” section lists relevant and useful books, articles, and Web sites. Universal Resource Locators (URLs) for Web sites appear in footnotes, and the author has graciously provided a companion Web site to prevent readers from retyping those URLs. Every chapter ends with a “Takeaway Points” section, enabling readers to quickly scan and review key points.

*Design for Use* also devotes a chapter to product documentation. Mathis emphasizes the importance of beginning work on the manual during the research cycle. He reminds us that users are unhappy when they read the manual, “so manuals should fix the problem, not make people even more unhappy” (p. 33). Mathis recommends also using blog posts, screencasts, and press releases to promote products. Regardless of the communication medium, he stresses that each should maintain a focus on tasks, not features.

*Design for Use* is an excellent resource for both aspiring and practicing interaction designers. While the book can serve as a comprehensive overview for newcomers, it also offers sage advice for seasoned practitioners. Mathis covers a broad array of relatively short topics in a thorough, engaging, and conversational style.

**Eddie VanArsdall**
Eddie VanArsdall is a technical writer, editor, and business analyst in the Washington, DC area. He has a broad range of experience supporting clients in various industries and knowledge domains. His mission is to ensure that Web sites and other communication channels integrate content and design to optimize the user experience.

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Although most technical communicators do not view themselves as graphics experts, many workplaces expect skills in visualizing data, especially in designing charts and graphs. Wong’s book aims to teach professionals who find themselves “scrambling to express themselves graphically” (p. 15). She offers practical “dos and don’ts” based on her experience in designing quantitative displays for *The Wall Street Journal*.

Wong’s slim text has five chapters: The Basics, Chart Smart, Ready Reference, Tricky Situations, and Charting Your Course. She takes an information design approach by emphasizing readers and their needs for clear, point-driven graphics. Although she aims the book at any professional, most of Wong’s examples are financial graphics. Throughout the book, Wong emphasizes designing charts and graphs so that busy readers can use data displays productively—making comparisons, viewing relationships, and identifying trends. She reminds communicators to simplify and focus each graphic to direct the readers’ attention. For example, she suggests that comparative data is easier to scan when presented vertically rather than horizontally. She offers “before” and “after” examples detailing the weaknesses of the original information graphics and the benefits of the redesigns. Wong spends most of her time on the design of bar charts, pie charts, and line graphs, and says little about diagrams, schematics, or maps.

Wong’s strength lies in reminding readers about several key aspects of designing charts. First, in creating bar charts, it is important to make sure the values on the Y axis start with zero (rather than truncating the data). In designing pie charts, it’s wise to organize the segments with the largest data slice at twelve o’clock and to work around the pie from the largest to the smallest slice of data. Second, designers should use shading and color in graphs not for decoration, but for cueing readers’
regarding what is important. Third, in designing charts, graphs, or tables, it is crucial to filter the data so that the most important comparisons are easy to see at a glance. This means that the typography and the use of color should not overwhelm the data, but bring the main points into focus. Wong offers many elegantly designed examples that support these design principles, arguing that one wrong data point can destroy the credibility of the whole chart.

Although Wong’s book offers many useful guidelines, there are few new ideas. Most of the advice compiles the work of previous authors (Tufte, Tukey, Cleveland & McGill, and Kosslyn). She mentions Tufte, her former teacher, but surprisingly, none of the other authors her work draws on are cited. In fact, most of her guidelines are restatements of others’ work. One wonders why this book has no data to support its assertions. Technical communicators looking for empirical evidence for data graphics principles will be disappointed. However, Wong’s text may prove handy indeed for those looking for thoughtful tips about designing bar and pie charts.

Karen Schriver
Karen Schriver, PhD from Carnegie Mellon University, is passionate about information design. She authored *Dynamics in Document Design* (in its 9th printing) and is an STC Fellow and recipient of the Ken Rainey Award for Excellence in Research. She heads KSA Communication Design & Research and posts on Twitter @firstwren.

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**From Idea to Print: How to Write a Technical Book or Article and Get It Published**


Use a great hook to grab an editor’s attention. This is some advice that Roger Sanders gives concerning the writing of an effective query for a technical article or book.

Sanders’ example of an effective email query provides especially good insight on the hook and the pitch, as well as other details that could make an editor accept an idea.

Having published over two dozen technical books and countless articles (mostly about DB2), Sanders provides in *From Idea to Print: How to Write a Technical Article or Book and Get It Published* a comprehensive look at his subject. Develop an idea, write a query, convince a publisher, negotiate a contract, submit the draft, and promote the piece once it is published. Of special interest to me outside of the material provided on publishing agreements and simultaneous submissions was the “Staying out of Trouble” section. Topics in this section include bias free writing with great examples of before and after; plagiarism with examples of how to make ideas your own; copyright infringement with real-world rewrites Sanders provides of his own material; and defamation, libel, and slander with valuable reference materials for writers.

Another valuable find are the sections of the book that review what is good writing with striking examples of good tables, artwork, sidebars, and general advice such as “Use small words and simple language” (p. 165). Thank you, Roger, for reminding us of this and believing in it. “Be your most pleasant self” as people prefer to spend time with someone who is considerate and not arrogant (p. 174). Fortunately, in this book the author practices what he preaches.

Jeanette Evans
Jeanette Evans has more than 15 years in the field. An STC Associate Fellow, she is active in the NEO STC chapter where she serves as academic relations co-chair and newsletter co-editor. She tries to publish often in *Intercom* and has presented at various STC functions.
Listen. Write. Present: The Elements for Communicating Science and Technology

“Listen. Write. Present.” The three title words summarize this book’s purpose. Stephanie Roberson Barnard and Deborah St. James write a concise, thorough summary of the skills needed to succeed beyond the classroom in science and technology professions.

One reason Listen. Write. Present. is successful in reaching its audience is that it encompasses highlights from other communication books into a one-stop shop resource. For example, the writing section highlights important grammar and punctuation rules, of which many are found in Strunk and White’s The Elements of Style. The chapter on presenting includes tips about how to optimize the use of slides—information that is a condensed version from Garr Reynolds’s Presentation Zen Design.

Also covered are topics of networking, serving, and listening. These are always helpful soft skills to review and practice, but particularly necessary for advancement in science and technology. Networking, serving, and listening are also necessary skills in other professions. This book is practical as a guide for almost any career. The chapter about meetings includes a section about how to run an effective meeting. Having sat through many meetings unrelated to science and technology, I kept thinking about how I wished everybody, regardless of their discipline of study, would review these skills to create faster, more efficient meetings. Perhaps Barnard and St. James could modify their title to encompass additional career fields and garner a larger audience.

Listen. Write. Present. could be used as a job searching tool for scientists as it includes sections about interviewing and résumés. A helpful addition might be a curriculum vitae sample as it is often easier to understand format by example than by description.

Many of the traditional communications books do not include information on how to incorporate technology into professional communication. This book does. From helpful tips about email etiquette to tips about formatting PowerPoint presentations, technology is definitely emphasized as a critical component to current communication.

One goal stated in Listen. Write. Present. is to create a quick reference manual for scientists. Although this is largely successful for the general information about writing and communicating, I found a flaw in this book for specific disciplines of science. The writing chapter includes a section about writing in the active voice instead of the passive voice. In writing scientific papers in chemistry, the passive voice is the accepted format for publication in a journal. For the scientist trying to submit a paper for publication, this section would provide misleading advice.

However, for a general guide about how to effectively leverage soft skills to maximize career opportunities, Listen. Write. Present. is an excellent resource. With its detailed index and list of additional resources at the end, it is a one-stop shop reference for any scientist’s shelf.

Julie Kinyoun
Julie Kinyoun teaches chemistry at local community colleges in southern California. As a freelance writer, she writes about biological, physical and chemical sciences for local and national publications. Julie holds an MA in chemistry from San Diego State University.
Informal Learning Basics

I have to admit that I was initially put off by this book’s preface material because the wording implies an entirely pragmatic approach to helping workers be more productive in the workplace. The implications of such an approach to professional training and development had me concerned because it came across as employee manipulation for the benefit of employers. I was, however, pleasantly surprised as I began reading the well-researched, practical, and theoretically based information about informal learning and how it can be applied in the workplace for the betterment of employees and employers.

A discussion regarding the definitions of informal learning, formal learning, and learning awakens readers to the complexity of training and development in the workplace. The first chapter introduces other helpful information such as learning about trends in the economy and workplace that force companies to explore alternatives to formal training, issues that concern educators as well as company trainers. Introduced early on in the second chapter are the nine principles or characteristics of informal learning. These nine principles provide the basis for understanding how to use formal and informal learning in the workplace and how training and development professionals can support informal learning. Informal Learning Basics also has chapters on how trainers can develop group and individual activities to support informal learning, and how to use technology in these efforts as well. Most especially helpful is the final chapter on evaluating informal learning.

This book’s strengths are its research-based content that sets an excellent example of theory and application in the workplace, its easily understandable principles and strategies, and its individualistic approach for trainers to help workers achieve a greater sense of self-awareness regarding their interests, strengths, and abilities. While seemingly minor, the preface material mentioned above and the use of stick figures for icons may give readers, such as me, the wrong impression that Informal Learning Basics is highly corporate and only pragmatic in nature.

Therefore, some readers who may actually benefit from reading this book, such as educators, may not get past the first few pages.

Written for training and development professionals and managers, Informal Learning Basics, is highly accessible in language and content. Furthermore, each chapter is well organized with easily understandable principles and strategies that are scaffolded for optimum learning. Even the exercises and worksheets are well placed, relevant, and extremely helpful in demonstrating the concepts presented in each chapter, but they are also useful by themselves for training and development purposes in the workplace and worksheets in a classroom setting.

Diane Martinez
Diane Martinez is an assistant professor of professional and technical communication at Western Carolina University. She previously worked as a technical writer in engineering, an online writing instructor, and an online writing center specialist. She has been with STC since 2005.

Vernacular Eloquence: What Speech Can Bring to Writing

Most people know Peter Elbow through his major work, Writing Without Teachers, now almost 40 years old. That book is known for his advocacy of freewriting, a type of writing style that gets students to write without being overconscious of grammar, spelling, and punctuation until a later stage.

Elbow recently has been devoting himself to the relationship of speech and writing, or as he puts it, using the benefits of speech for writing so that “we can enlist the language activity most people find easiest, speaking, for the language activity most people find hardest, writing” (p. 139). The result after eight years of writing is this book. The target audience for Vernacular Eloquence is writers, teachers, scholars, researchers, and “people in the general
intellectual community who think about writing and literacy but don’t care about the scholarship” (p. 8). I would think that the latter would include technical communication professionals.

What is it that speech has that’s so valuable for writing? Basically, it does a better job than writing in reaching, touching, and manipulating us. It lends itself to storytelling better, which helps us experience meaning better. Speech has a social dimension, whereas writing tends to the private and individual side of life.

What this means for writing is that we need to have a more relaxed attitude. We should allow roughness in writing, at least in its initial stages, so that the value of speech is preserved in the written word. But what Elbow hopes it means, is that the literacy standards will change so that goodness, and not correctness, will be the goal. Prescriptivists, those who think that there are standards of English, will not like this. Descriptivists, those who think that we cannot prescribe such standards, will like it. Elbow finally lets his hair down when he says, “In truth, this whole book is a celebration of hybridity and impurity” (p. 195).

Rather than get caught in this battle, I think it is more important to learn what else Elbow has to teach us. And one of the most interesting of them is what he calls “speaking onto the page” (p. 147). This is his term for the process whereby he writes as naturally as possible on the computer screen, without thinking about its correctness. This should not be surprising, given his emphasis on freewriting. But it made me immediately think about voice-activated software. While such software has made writing easier, and has improved over the years, “…it won’t give you ‘correct written English’ unless you speak with ‘correct written English’” (181).

Elbow examines punctuation traditions and finds that the older follows rhetoric (speech) and the newer one grammar. Copyeditors follow the latter, unless they are dealing with literary prose, where there is more freedom.

Finally, his notion that writing should come before reading for schoolchildren is worth exploring. “People fall asleep while reading, never while writing” (p. 322).

Charles R. Crawley
Charles R. Crawley is a lead technical writer at Rockwell Collins in Cedar Rapids, Iowa. He also teaches as an adjunct at Mount Mercy University in Cedar Rapids and serves as the public relations manager for the Eastern Iowa Chapter.

### Book Reviews

#### Speaking American: A History of English in the United States


“The English and the Americans,” George Bernard Shaw is supposed to have said but not written, “are two people divided by a common language.” Shaw, at least in this quote, saw nothing in American language to suggest inferiority. Others, however, did not agree.

The late Richard Bailey, in Speaking American: A History of English in the United States, points out that “Almost no British visitor in this era [1800–1850] described American society without a sneer at the English used here . . .” (p. 112) And the Fowlers in The King’s English (1906) echo this attitude by insisting on classifying Americanisms as foreign words, and insisting that they be treated as such. And in the second edition of the Concise Oxford Dictionary, H.G. Fowler turned the whole issue of Americanisms over to other experts.

Certainly, this attitude persisted until H. L. Mencken published his monumental The American Language in 1919. Thereafter, the identity of American English as a viable language was assured.

Most books focusing on all facets of American English are scholarly tomes that are meant for academics. Bailey’s contribution, while solid in its scholarship, is remarkably readable. He takes you on a tour of eight geographical centers of influence, each focused on a 50-year time block. Beginning in Chesapeake Bay (before 1650) and ending in Los Angeles (1950–2000), his explanations of how American English grew as the country grew will give you a strong background for understanding the American language.

What is a little unusual about his approach is signaled by the title: “Speaking.” Bailey builds his case by beginning with the spoken language found in reports of various kinds in newspapers and court documents, among others. Additional oral influences include various dialects and languages of natives and non-natives alike and advances in technology, science, and the arts. Vocabulary additions are a part of how
American English developed, but there are syntactical structures also. For example, ending sentences with prepositions has become part of the language in spite of the criticisms of not only British critics, but also some American ones.

The chapter that will be most interesting to technical communicators is the one on Los Angeles and the influence of the computer. Vocabulary, spelling, and syntax used with computers affect the language we use today.

Television and films are also influential, and Bailey further notes that special language groups come and go. For example, we no longer need translations for the Valley Girl language because it has disappeared.

In an Epilogue, Bailey draws two conclusions about American English. First, our current ways of speaking will disappear; second, the old influences on American English will be replaced by new influences—principally, the Internet.

This historical presentation of how American English evolved is readable and informative. I would recommend it for anyone interested in how the language has changed over the years and what will influence it in the future.

**Tom Warren**

Tom Warren is an STC Fellow, Jay R. Gould Award for Excellence recipient, and professor emeritus of English (technical writing) at Oklahoma State University, where he established the BA, MA, and PhD technical writing programs. Past president of INTECOM, he serves as guest professor at the University of Paderborn, Germany.

**Writing in Software Development**


How many times have you heard computer programmers grouse, “I hate to write!” Your best response is now to hand them copies of Allan Stavely’s newest book. His *Toward Zero Defect Programming* (Addison-Wesley Professional, 1998) taught programmers how to bug-proof their code. Now his *Writing in Software Development* teaches them how to bug-proof their careers.

Stavely shows them what to do, why they should do it, and in general how to do it. He brings up excellent reasons that they must learn to write readable and reasonable code, write design documents, get reviewers’ approval, integrate documentation and code, develop various requirements and specifications documents, and harvest the benefits of electronic documentation.

He offers dozens of points of reality-based wisdom that are really applied common sense. He argues, for example, “If you are doing your development based on a specifications document, your design plan can follow its structure” (p. 43).

The 46 substantive numbered figures include code samples, screenshots, and other graphics that nicely illustrate best practices in programming documentation. And an interesting case study fully explains the differences between user documentation (what this book is not about) and internal documentation for the same product, a hypertext bird taxonomy system.

I like the intellectual crispness found in the three concluding sections of each chapter. In “Notes” Stavely plays with the implications of resource material he’s used in that chapter. “To think about” challenges readers to apply his ideas to their own work. The third section, “For managers,” refocuses thinking about the chapter content to ask programmers’ managers hard questions and offer excellent advice: “Be sure that you reward good-quality documentation and not documentation by the pound. And . . . . if your organization measures a programmer’s productivity by lines of code produced per day . . . you might want to try to change this policy” (p. 66).
The author doesn’t provide many pages of specific details on how to write the documents that he introduces. He recommends instead that readers couple this book with a good, detailed technical writing book. Stavely further advises them to read his book first to get an overview of what they should learn to write and after that take a technical writing course. I find this an informed way to get programmers writing with confidence.

It’s good seeing programmers (and their managers) getting attention because they are an important audience that is too often neglected in technical communication texts. But the book is also a solid resource for a major secondary audience that the author has perhaps not anticipated: technical communicators. We often lack confidence when we must write, edit, or at least know about programming design and specifications documents, thereby missing an opportunity to add full value to projects.

The full bibliography lists excellent sources of further, including Technical Communication articles and many books that have been reviewed in the journal.

I commend The New Mexico Tech Press for giving programmers an excellent tool for building the applied writing skills that will enhance their careers. I commend the Press also for donating part of the revenue from sales of the book to student scholarships.

Avon J. Murphy
Avon J. Murphy is a technical editor in western Washington. A retired college professor and government writer, he is an STC Fellow, a contractor, and principal in Murphy Editing and Writing Services, specializing in computer and Web technologies. Avon served as book review editor for Technical Communication for 17 years.

Managing Enterprise Content: A Unified Content Strategy

Ann Rockley and Charles Cooper have significantly revised Managing Enterprise Content: A Unified Content Strategy to reflect the proliferation of technology and publishing channels, as well as the changing specialty of content strategy. This book is a must-have for every technical communicator who wants to understand how to prepare for content management and how to develop a content strategy.

The authors do a great job of providing the reader with navigational aids and summaries. The introduction explains who should read which parts of the book and each section has an abstract and summary to provide further guidance.

If you are brand new to content strategy, chapters 1–6 provide definitions and explanations about why it’s important. You will find a couple of good items that you can use on your manager when presenting a business case, such as “Content strategy plans for the creation, delivery, and governance of content (Halvorsen)” (p. 34); “Adaptive content automatically adjusts to different environments and device capabilities to deliver the best possible customer experience, filtering and layering content for greater or lesser depth of detail” (p. 35). And, “[With a content strategy] there is more upfront design, but less rework and less wasted time and effort” (p. 38).

Chapter 7 is where the authors begin to explain how to do an audit and develop a content strategy. Managing Enterprise Content can be used as a primer for the activities required to create a content strategy. The book includes an extensive glossary and an appendix that contains a checklist that you can use to develop your own content strategy.

A few things that are missing from this edition are a chapter on estimating and scoping this type of project and a chapter on return on investment (ROI). The ROI discussion in the 1st edition was very helpful.
for developing a business case for management. An estimating and scoping chapter would also be helpful in preparing a proposal or business case for management, and would drive home the knowledge that this type of endeavor is non-trivial; it requires a significant investment and commitment to do well.

The real-world examples and case studies are extremely useful in understanding the complexity of doing content strategy, and the governance section provides helpful information on change management and some of the issues that cause projects to fail. The roles discussion is helpful for managers who need to create a skills matrix so that they identify current skills and training needs for their team.

Overall, Managing Enterprise Content is a foundational book for every technical communicator’s bookshelf, besides being a quick read. The techniques and information provided here not only help with business case development and creating an actual content strategy, but the information also can be scaled to suit the needs of a particular team or company.

Katherine (Kit) Brown-Hoekstra

Katherine Brown-Hoekstra, of Comgenesis, LLC, is an Associate Fellow for STC, speaks at conferences worldwide, and has authored many articles on various topics related to technical communication and internationalization. She has a background in life sciences and 20+ years of experience. She also coauthored a book on managing virtual teams.

UContent: The Information Professional’s Guide to User-Generated Content


UContent: The Information Professional’s Guide to User-Generated Content is an easy to understand text that introduces readers to user-generated content and how best to capitalize on the growing trend. “UContent” or user-generated content, is the content we often find on Web sites or social media sites that is created by the individual user or visitor. The reviews you read on your favorite online retailer are an example of user-generated content—Web site content that is created by the user instead of the online retailer. Other UContent examples are weblogs (commonly called blogs), wikis, podcasts and slideshows, and entries on social media sites such as Facebook and Twitter.

Tomaiuolo’s book is designed for information professionals (librarians), yet anyone new to the field of UContent will find this book helpful. Those familiar with UContent will find this book too introductory as it is really designed to introduce the reader to the topic and explain the various types of UContent. Tomaiuolo’s writing is clear, friendly (he uses interesting terms such as “juicy utility” and “link-rot”), and easily accessible and doesn’t stray into overly technical language that might intimidate those unfamiliar with so called Web 2.0 products. The book begins with a general overview that defines UContent and explains how it has evolved. Subsequent chapters focus on particular UContent tools: Project Gutenberg (an effort to place literary texts and other texts in an online repository), the aforementioned blogs and wikis, podcasts, slideshows, screencasts, video, social media such as Facebook, product reviews, self-publishing, and citizen journalism. The text also details tagging, customized search engines, cybercartography, and Flickr.

Each individual chapter details the chosen UContent tool and how it works. Tomaiuolo also gives readers ideas of how to implement the particular tool. In the Project Gutenberg chapter, Tomaiuolo includes a journal of his efforts to submit a text to the
online repository and includes details on how to get started, the individual steps in the process, and how long it took. The text also includes interviews with UContent experts. For instance, in the chapter on wikis, Tomaiuolo includes an interview with a university administrator that details how her university uses wikis. These interviews allow a reader to examine how various organizations are actually implementing these tools.

Tomaiuolo includes a variety of graphics throughout the book with many taken directly from actual sites that are using UContent tools. He also includes a wide variety of Web site links where a reader can find additional information about these tools. Do note that the examples and links are geared specifically toward information professionals, but any reader assigned the task of wading into the UContent phenomenon will find this text a good introduction.

Carolyn Dunn
Carolyn Kusbit Dunn is an assistant professor at East Carolina University and an STC member. She teaches technical writing and her research interests are the use of technology in communication, risk and crisis communication, and discourse and power. She has worked in marketing and television journalism.

Stellar Presentations: An Entrepreneur’s Guide to Giving Great Talks

This slim volume is geared toward technology entrepreneurs who are trying to sell an audience a product or service. Its four sections cover preparation and delivery of the speech, as well as tips for specific potential problems and a brief chapter exhorting presenters to have fun.

Shel Israel’s advice:

- Determine the expected audience, the precise idea/product/service you are trying to sell to this audience, and the desired outcome of the presentation before you write your speech
- Learn from other speakers
- Practice, practice, practice
- Focus on one main point—a “positioning statement”
- Tell stories instead of—or at least in addition to—using PowerPoint slides
- Start with your strongest benefit
- Focus the speech on the product (or service), not yourself and have backup plans for demo mishaps
- Keep it simple—no more than three main points, which are repeated in the introduction and summary
- Be yourself
- Show your passion (for the product/service, not your partner!)
- Use personal pronouns rather than abstract speech

Stellar Presentations draws heavily on both the author’s and other speakers’ experiences, with anecdotes illustrating the various points sprinkled liberally throughout the text. While many of these anecdotes are amusing, the actual advice offered is fairly basic. On the other hand, “techies” who must become salespeople to get funding or otherwise sell their idea may find such information helpful.
Barbara Jungwirth
Barbara Jungwirth, an STC Senior Member, owns reliable translations LLC (www.reliable-translations.com) where she translates technical documents from German to English and codes for an HIV Web site. She also writes a blog, On Language and Translation (http://reliable-translations.blogspot.com) and posts updates on Twitter (@reliabletran).

Oxford Dictionary of Marketing

The Oxford Dictionary of Marketing is one paperback reference guide that is not stodgy. After all, Charles Doyle is the Chief Marketing and Communications Officer for Jones Lang LaSalle, a global commercial real estate company. His guide is edgy, with a strong international focus. Alphabetically arranged topics cover traditional marketing right along with the use of digital and multimedia and the impact of social media and internet on global marketing.

The difficulty in reviewing a dictionary stems from the isolation of terms and lack of a cohesive whole. But extra features included in this guide—marketing timelines (appendix 1), detailed case studies of iconic brands (appendix 2), and brand slogans (appendix 3)—make the reviewer’s, and ultimately the user’s, task enjoyable.

A few tidbits worth noting: It is interesting to realize that it took only 30 years from the introduction of floppy disk drives to the launch of Twitter in 2006. And, did you know that Will Keith (WK) Kellogg, inventor of flaked cereals, put his name on each package to mark his as the original due to competitors? Or, how about naming the year Carnation began using the slogan: Milk from Contented Cows (answer: 1906).

Sidebars covering complex studies provide more to like and from which to learn. Consider the 14-page sidebar overview of the marketing plan. A few of the topics that Doyle covers are Vision, Mission Statement, and Objectives; Pricing for Profit, Discounts, and Preparation of Promotional Tactical Plan with 50 bulleted suggestions; as well as a Distribution Plan to get the word out about a product or service.

Other sidebars include consumer behavior and motivations models, pricing, products, and public relations. Note that all first level entries in the dictionary are in lower case, and, yes, there is British spelling since the guide is from Oxford University.

There are biographical entries on giants of the marketing industry. The Gallup, George entry is condensed to a single paragraph spanning his career from 1922 through 1947 when he established his poll. The Turner, Ted entry has a slightly longer paragraph, going from his first acquired TV station in 1970 to the purchase of the Cartoon Network in 1995.

And then there are the words, terms, and definitions that make anyone turn to a dictionary. Some definitions are short and reference another entry. There are technology entries, such as the definition of GANTT chart, RSS (really simple syndication) Web feed, and podcasting. There are marketing terms most will recognize and quite a few you may not, such as cherry picking and rifle shot approach.

This small volume is the perfect companion for a marketing class, or can provide fodder to ruminate on for those planning to market a product or service of their own.

Donna Ford
Donna Ford is a senior member of the Society for Technical Communications. She has worked as a technical writer for various industries, lately health care and insurance IT.
**Technical Communication Today**


*Technical Communication Today* by Richard Johnson-Sheehan is an introductory technical writing textbook that is designed for undergraduate-level students. However, this text is significantly different from other introductory technical communication textbooks.

This book represents a change in how authors will write and organize technical communication textbooks. Johnson-Sheehan turns the traditional textbook organization on its head and makes it as close of a comprehensive, multimedia-like experience as is possible in a printed book. He organizes the book to be scanned and read in parts (not to be read from start to finish) to better accommodate how students look for and find information in the Internet age. Information is chunked with plenty of graphics and case studies to explore. The colored bar that appears at the bottom of the text tells students which unit of the book they are in, as well as presents the Universal Resource Locators (URLs) of Web sites where they can find helpful information such as editing help, additional case studies, or reference materials.

*Technical Communication Today* has numerous strengths. Johnson-Sheehan presents the traditional genres such as letters and memos, proposals, instructions, and job materials. Instead of taking a prescriptive approach, he describes genres as “flexible approaches that allow people to bring order to the evolving reality around them” (p. xxii). Johnson-Sheehan presents “microgenres,” or ways in which the traditional genres are adapted and used in real-life contexts, to show students the malleability of genres. For example, he discusses a text message, which can be interpreted as a form of electronic communication lying somewhere between an e-mail and a telephone call. Johnson-Sheehan further explains how to approach text messages in the workplace and provides usage guidelines, such as avoiding excessive abbreviations.

Johnson-Sheehan’s more focused approach presents technical communication as a workplace tool from which all professions can benefit. His approach to technical communication will help students prepare for careers in the field through his use of highly technical examples and information that is of interest to technical writers, such as the IEEE Code of Ethics. If your students are technical writing or business majors, this approach is a significant strength. Otherwise, the book’s focus on technical writing as a profession can be a drawback because students may not reconcile what they are learning with writing in their profession.

Based on the book’s novel organization, unique areas of focus, and approach to technical writing as a profession, professors and instructors teaching technical communication will appreciate what Johnson-Sheehan is attempting to do and embrace this text whole-heartedly, or they will reject it for their favorite technical communication textbook. After exploring Johnson-Sheehan’s *Technical Communication Today*, I could be persuaded to change my mind and use this text instead as I found Johnson-Sheehan’s approach refreshing and revitalizing.

**Nicole St. Germaine**

Nicole St. Germaine is an assistant professor of technical and business writing at Angelo State University, as well as a freelance health and legal writer. Her research interests include technical communication for a Mexican-American audience and technical communication in the health fields.
The Fast-Track Course on How to Write a Nonfiction Book Proposal


One of the best things any technical writer can do to expand their skills and further their career is to write a book. The Fast-Track Course on How to Write a Nonfiction Book Proposal does an excellent job of stepping you through the first and most obscure part of the bookwriting process: building a successful book proposal.

Mettee's book is short, well-organized, and really only has three chapters that take up the first half of the book: “First Things” introduces you to a number of important concepts about publishing, “The Query Letter” describes what should go into a query letter, and “The Proposal” discusses the elements of Mettee’s recommended proposal format. The remainder of the book is samples for you to look at and model: a query letter, a book proposal, an agency contract, a book contract, and many other references.

There’s much to like about this book. The information is aimed very specifically at someone who was never written a book before, thinks that they would like to do this, but hasn’t a clue as to where to begin. The tone is consistently supportive and encouraging. Mettee presents the information in the chapters in a FAQ style with centered headings, such as “How long should a book proposal be?”, “Self-publishing”, “Will I need an agent?”, “What is an advance?”, and “Will I need an attorney to look at my book contract?”. The book includes sidebars to address common problems for wannabe authors, such as “My writing skills aren’t so great” and “Why didn’t they like it? It must be a bum idea.” The sample query letter and proposal are excellent general purpose documents that will work for any nonfiction book. Similarly, the sample contracts and agreements are enough to give you an idea of what to expect. There are even cartoons separating many of the chapters and sections.

There are only a few places where I think Mettee could have done better. He might have mentioned that many publishers have a proposal format available for download on their Web sites (although I have never had a book turned down because the proposal format was different from what the publisher recommended). He might also have had links to downloadable versions of some of his samples. Mettee should've taken a couple paragraphs to discuss how to use references like the annual “Writer’s Market” and online research to identify publishers to submit proposals to.

Despite these minor quibbles, this is a first-rate book on this topic. Mettee’s knowledge and expertise is visible in every page. Wannabe authors will feel like their questions are being addressed by someone who knows just how they feel and what their concerns are. If you’d like to try writing a book but don’t know how to start the process, you will need no other book than this.

John Hedtke

John Hedtke has been a technical writer for 30 years. He has published 26 nonfiction books and runs a blog for nonfiction authors called “Hey, Kids, Become an Author at Home in Your Spare Time and Earn Big Bucks!” at www.tradebookauthor.com.
Microsoft Project 2010 Inside Out


When I first perused Microsoft Project 2010 Inside Out, it struck me how, as recently as the 1990s, its topic would not have been a Technical Journal book review target. Now, that “line of demarcation” that once existed between technical communicator and related skills is “clearly blurred” with many of us now wearing “multiple hats,” including project manager. With this in mind, I evaluated this book on how it stacks up as a quality technical communications document, how well it meets the business/content needs of its intended audience, and what separates it from other publications on the same topic.

As a technical document, the authors clearly applied technical communication fundamentals. They identified their target audiences as intermediate to experienced project managers with expectations of having some Microsoft Office Suite experience. Based on this, the authors segregated this book into eight parts:

- Parts 1–4 cover how to set up and manage a project through all stages, including comprehensive coverage on data analysis and reporting.
- Part 5 explores the advance features to manage projects at a program level.
- Part 6 completely integrates MS Project with other key tools within Microsoft Office 2010 (MS Excel, MS Outlook, and MS SharePoint).
- Part 7 provides an advanced, comprehensive tutorial on how MS Project supports Enterprise Content Management.
- Part 8 focuses on customizing the tool.

Technical appendixes detail application installation, online resources, and keyboard shortcuts.

The information organization and presentation is very high quality; written clearly, edited concisely, with sections, and Sections and Chapters, anchored on clearly defined and illustrated procedures. Sign posts, including a set of gutter icons, indicate corresponding content type. Perhaps the document’s only deficiency is its lack of a glossary.

Microsoft Project 2010 Inside Out follows industry best practices for project setup, maintenance, analysis, and reporting as defined by PMI LCM for a waterfall or iterative waterfall project. Advanced information is separated so that the “90–10” basics are presented without interruption (for the intermediate reader).

With the publication, the authors include online access to comprehensive examples that can be copied as templates for project setup. The book’s online version enables quick look-up of incidental or specific information.

Microsoft Project 2010 Inside Out is not for the “10-minute reader.” It is a serious, thorough treatise on MS Project 2010 that delivers what is needed to take full, efficient advantage of MS Project.

Finally, the clue of how the document separates itself from others on the same topic is captured within the title itself—the “Inside Out” tips. The book is permeated with these standout descriptions of “practical advice” on things like “why this function behaves as it does” or “where there is a better way to complete the same task.” The authors did a great job of anticipating timely questions and technical challenges that perhaps Microsoft did not provide as clear a path as it could have done.

Mark Hanigan

Mark Hanigan has more than 30 years’ experience as a technical writer, business analyst, instructional designer, trainer, speaker, and project manager. He has his own consulting company, On the Write Track. He has served in various STC roles at chapter and Society levels, including president in 2000-2001, and was elected Fellow in 2005.
Setting the Scene: The Art and Evolution of Animation Layout


Setting the Scene: The Art and Evolution of Animation Layout is a detailed history of layout in animation. MacLean writes with obvious passion and love for the animation industry and layout in particular. I was thoroughly entertained as I peered behind the scenes of beloved animated movies.

Some of MacLean’s passion gets away and the details begin to overwhelm someone with no history in animation. He writes, “Usually drawn in red pencil with the wording in bold capitals, …camera guides indicated what the required fielding (or aspect ratio) of the scene was, where the N/S, E/W (North/South, East/West), and START and END (first frame and last frame) positions were for any requested moves” (p. 43). It begins to make my head spin trying to imagine the work he describes with the cameras.

The book also has many passionate quotes from leaders in the animation industry. MacLean interviewed those he could and the mentees of those he couldn’t. They all sound just as passionate as his writing. You can flip to nearly any page in the book to find one. In discussing lighting in computer-animated movies compared to physical lighting, he quotes Pixar Director of Photography Sharon Calahan saying “If you really want that bounce light there, you have to add it, you don’t get that for free” (p. 198).

However, it does not include the theory of layout design. Some discussion of theory comes about as part of the process of the evolution of layout design, but none of the theories are discussed in detail. This book may aid you in thinking about how to lay out videos that are more fun, but I didn’t read anything that would apply to training videos for software. For example, MacLean points out “how important it is for scenic design to make its impact at the unconscious level” (p. 31).

Setting the Scene also, importantly, includes many spectacular pictures. Again, you can flip to any page in the book and come across beautiful art. These inspiring examples of layout are all described in a caption that lets you look at the movie snapshot under a new light, examining why they decided to lay out a scene the way they did. MacLean describes a background painting by Tom O’Loughlin as “heightened perspective and strong diagonal compositions are used in these Sylvester and Speedy Gonzales backgrounds to help emphasize the contrast in scale between the cat in charge of the gigantic ship and the tiny mice” (p. 130).

If you are lucky enough to create videos, video games, or even photos with humor and heart as part of your technical writing, this book might provide a new way to think about your visual layout approach. As a software technical writer, I did not find any information to apply to my work as much as I enjoyed it.

Angela Boyle
Angela Boyle is a technical writer for Tyler Technologies, Inc., where she has worked for six years. She graduated from the University of Washington with a BS in Technical Communication.
Photoshop Brushes & Creative Tools: Ornate Letters & Alphabets


Photoshop Brushes & Creative Tools–Ornate Letters & Alphabets is a reference guide to the Photoshop preset brushes, custom shapes, and styles contained on an included CD.

Knowledge of installing and using Photoshop presets is recommended. If you are not familiar with using presets or do not have Photoshop, the CD contains 202 JPG images of the ornate letters, texture brush strokes, and custom shape letters. You can view these or route them to Microsoft Paint for editing through the Dover Design Manager, which automatically downloads from the CD during the installation process. However, using only the JPG images reduces the creativity you could achieve with the presets.

The Photoshop presets include 130 letter brushes, 52 letter custom shapes, 20 special texture brushes, and 20 styles. Although Photoshop Brushes & Creative Tools is a thin book, it provides generously sized color visuals of the letters, shapes, and styles, showing details of designs, people, animals, or floral motifs that make up each item. Each letter has five design versions, ranging from blockish styles to lavish opulence. Two letter designs form the Custom Shapes preset: one semi-sans-serif and one made from twigs. The brush stroke presets are primarily water-color strokes, while the style presets blend in with standard Photoshop styles.

The book contains illustrated instructions on how to load the brushes, shapes, and styles into Photoshop, besides tips on texture, color dynamics, and other options that you can do within Photoshop. The instructions are logically organized, cleanly laid out, and easily understandable.

Photoshop Brushes & Creative Tools states that you can use these presets with Photoshop versions CS–CS5.5. However, the actual wording and actions may vary somewhat from the book instructions, depending upon which version of Photoshop you use.

If this occurs, it can be resolved with a little thought, Photoshop experience, or online searching. For instance, the instruction for loading brushes on page 15 says to click on “Brushes” in the Window menu. In CS5.1, clicking on “Brush” opens a master palette box with a tab for the Brush Presets palette box. Clicking on “Brush Presets” in the CS5.1 Window menu directly opens the desired palette box where the “Load Brushes…” option is found.

One minor error was noted; on page 25, where Step 4 lists the wrong labels for the style images shown in the graphic. The style used as an example on page 25 is mislabeled as ST 005. On page 48, it is correctly identified as ST 008 (the same identifier as on the CD).

Despite the thinness of the book and variations in wording and actions between the instructions and Photoshop, this book and presets would be useful if you use ornate lettering and brushes often or like to engage in creative designs. If you do not, the $24.95 price tag may seem too high. Use of the images for graphics and crafts applications is free, without the need for special permission, with the caveat of not using more than 10 per project.

Sherry Shadday

Sherry Shadday works for Southwest Research Institute in Utah as a principal technical specialist in configuration management and editing engineering documents. An STC member, she retired from the U.S. Air Force as an aircraft electrical systems maintainer and has a technical communication master’s degree from Utah State University.
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- **Process Management**—Plan the deliverables schedule and monitor the process of fulfillment.
- **Information Development**—Author content in conformance with the design plan, through an iterative process of creation, review, and revision.
- **Information Production**—Assemble developed content into required deliverables that conform to all design, compliance, and production guidelines. Publish, deliver, and archive.

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