

SUMMARY

- ◆ Suggests that one reason why we are undervalued by those in related fields is our field's approach to technology training
- ◆ Argues that new approaches will broaden our potential and ultimately create a more sustainable profession

Renegotiating with Technology: Training Towards More Sustainable Technical Communication

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INTRODUCTION

In the fall of 2004, both of us participated in a graduate-level independent study course on knowledge management. A total of three of us met weekly in a coffee shop near campus to work through issues from our readings, critique each other's writing, and debug coding problems from our service-learning project. We learned, after gathering all the knowledge management works that we could find, that studying knowledge management as technical communicators means reading a short stack of critical, thoughtful articles from *Technical communication* and *Technical communication quarterly* and a number of how-to guides from *Intercom* and Hackos (2002) and Rockley (2002), and then wading into literature from other worlds—business analysis, information studies, management consulting—that never mention and appear to have no knowledge of the abilities, theories, and practices of technical communicators. Studying knowledge management, in other words, like studying information architecture, interface design, and other closely linked fields, means constantly being reminded of William Hart-Davidson's question about technology development in technical communication (2001): "Why not us?"

In what follows, we suggest that one answer might be the need for technical communication practitioners and academics to re-think technology training. We begin with an assessment of the current discussion of technologies in the field, arguing that technical communicators' current conflicted relationship encourages them to see technologies only as "tools" (Nardi and O'Day 1999), thus limiting

their potential and reinforcing the limited perceptions others have of their abilities. We continue by arguing for new thinking about training that will broaden technical communicators' possibilities as workers and researchers within organizations, and ultimately help create a more sustainable technical communication.

TECHNOLOGY ENTHUSIASM

Both academics and practitioners have long worried over the often-limited perspectives that outsiders have of the technology work of technical communicators (Bosley 2002; Faber and Johnson-Eilola 2002; Carliner 1996; Salvo 2004); a classic example is Saul Carliner's description of technical communicators as "tool jockeys":

Because we overemphasize the role of tools in our work, we get pegged as tool jockeys rather than communicators—asked only to convert a file from Word to RoboHelp rather than asked to write the text in the file. (1996, p. 273)

Similarly, Brenton Faber and Johndan Johnson-Eilola (2002) argue that a key problem is the tendency of technical communicators to become "in-person service workers"; with their tool focus and dedication to internal clients and product development, they seek short-term solutions and

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rarely engage in finding “ways to leverage their knowledge and build new knowledge to create and add value in a business culture that is increasingly agnostic to physical products” (p. 141). And Michael Salvo (2004) suggests that “[b]y measuring the professional status of technical communicators by their technical know-how, we limit technical communicators’ value to functional status” (p. 39). The concern in each case is that limited perceptions of technical communicators’ technological work by outsiders lead to fewer material and cultural rewards, that is, receiving lower pay and being taken less than seriously as substantive contributors to organizational efforts.

These concerns can also be detected in technical communication’s great, rampant enthusiasm for the new. New theories and tools are often seized on as capable of changing outsider perspectives, catapulting technical communicators out of tool jockey status or revolutionizing their work. One can see a version of this narrative by examining our late-1990s literature on HTML and Web development, but consider a more recent example. In the past few years, some scholars and practitioners have suggested that knowledge management and content management (KM and CM) promise possibilities of designer and manager status for low-status communicators (compare Wick 2000 and Rockley 2001 for versions of this argument). These calls for technical communicators to embrace and apply knowledge management *concepts* (which is what Wick is primarily advocating), have been met by (largely) academic cautions about the rhetorical implications of uncritically adopting new tools (Albers 2000; Carter 2003).

But the technologies of knowledge and content management—particularly technical communication-specific single sourcing tools—continue to be widely adopted by practitioners and taught by academics, and many recent *Intercom* articles and Society for Technical Communication conference presentations focus on KM- and CM-related technologies, often featuring the can-do and how-to spirit (“Get on the XML bandwagon!”) appropriate to a field that feels it must react quickly to keep up with new technologies.

For example, a search for KM and CM in the online STC databases shows a post-2000 decline in reflection on knowledge management and a greater focus on tool-related discussions of CM, XML, and single sourcing. Most focus on technology application rather than on pitfalls (although compare Sukach, Kennedy, and Devine 2003; Yeats and Hull 2004) or on learning, assessing, or working with the larger cultural and organizational factors that KM scholarship argues must be an integral part of any successful knowledge or content management initiative.

The technical communication tendency, if only because of the limits of time, resources, and the contracted scope of technical communicators’ jobs, is too often to

focus on the tools themselves, leaving the larger discussions to business and management types. Meanwhile, technical communicators often hope that their very use of the tools will expand their knowledge and status in useful ways. For example, J. D. Applen (2002) argues in “Technical communication, knowledge management, and XML” that

One of the best ways to understand the nature of the knowledge that technical communicators are trying to manage is by finding out how it is articulated across different branches of an organization, closely examining it, and then breaking it down into its essential components. These practices are what we are compelled to do when producing XML code, and technical communicators can expand their territory into the realm of knowledge management by learning how to model knowledge using XML. XML offers them a way to provide not just data, but data with context, thus supporting knowledge management because data with context is knowledge. (p. 307)

What Applen describes is an optimistic take on what psychologist J. J. Gibson called *affordances*, the “intrinsic features of technologies” that structure the use of those technologies. For example, Nardi and O’Day discuss the affordances of the refrigerator, which has both intended affordances—keeping things cool—but also unintended affordances—providing a magnetic surface for hanging things (Nardi and O’Day 1999, pp. 28–29). Applen suggests that the affordances of XML *compel* communicators to better understand their organizations.

While HTML allows technical communicators to put information online, make it look stylistically appealing, and make imaginative links between different bodies of information, XML compels them to reexamine just what information is of value to their organizations. (p. 308)

Unfortunately, having technical communicators’ insights about knowledge management and information value accepted and used by the organization at large is often not a matter of simply developing and sharing new knowledge and expertise. Certainly, a minority of technical communicators have developed significant expertise in conceptualizing and designing site-specific KM- and CM-technology applications. And despite the near-absence of technical communication from the vast knowledge management literature (see Davenport and Prusak 1998, p. 111 for a telling example), a few have undoubtedly, as Wick (2000) and Applen (2002) have envisioned, become members of organization-wide knowledge management teams.

But organizational ownership of KM-required cultural

changes have often remained outside the purview of technical communication, and the design, implementation, and management of accompanying tools and technologies have been largely ceded to information technology specialists. For too many technical communicators, KM and CM have simply meant a new end-user experience with more new software, and training has increasingly become an issue of learning tools simply to keep up, whether in a rhetorically savvy course or in a point-and-click vendor seminar (Clark 2002).

TECHNOLOGY AS TOOL

The tool focus exemplified by much of technical communication's work in knowledge management typifies a relationship with technology best classified as "technology as tool." Technology as tool is a concept of technology use developed by social scientist Bonnie Nardi and computer scientist Vicki O'Day (1999). Technology as tool should not be mistaken for an abstracted, strawperson concept like two of those offered by Andrew Feenberg in *Critical theory of technology* (1999); his "instrumentalist" (technologies are inherently neutral—"guns don't kill people; people kill people") and "substantivist" (technologies have inherent positive and/or negative qualities—"the Internet is inherently liberating") viewpoints are a rare luxury in day-to-day work in an organization. "Technology as tool," on the other hand, is a practical, design-oriented viewpoint in which users think of themselves as in control of technologies that they apply to practical ends, such as the rhetorical design of products:

Part of the delight of doing technology design is working with the materials (software, computer displays, networks) and making them do interesting, unexpected, and clever things. Thinking about technology as a tool helps designers remember that there is someone on the other end—people who are using the tool. It is not enough to think about the tool's inherent elegance and capabilities; one also has to think about the handles it offers to its users. (Nardi and O'Day, p. 29–30, emphasis in original)

In a "technology as tool" outlook, then, users and designers are given credit for intelligent, rhetorical tool design and application, and Nardi and O'Day's description mirrors the rhetorically driven tool perspective taught by many academics and embraced by many practitioners, all of whom place a premium on creating useful, functional tools and documentation for users. There are limits to this perspective, however, and Nardi and O'Day use Donald Norman's work as an example of these limits. They clearly admire Norman's work on one level:

Norman takes readers on a tour of everyday objects such as doors, cars, typewriters, faucets, and telephones. He shows how designers can help people figure out what to do with these objects by making the appropriate actions visible and obvious and by exploiting the inherent constraints of materials and things. (p. 28)

But they also note that while "Norman's books draw attention to the affordances of designed objects, and he offers valuable precepts to designers of tools of all kinds . . . He focuses on what happens when individual human beings interact with singular material objects—with little or no reference to the social situations or even the surrounding physical context in which these encounters take place" (p. 29). As an example, Nardi and O'Day raise the question of Web site filtering:

. . . there are no design criteria that could emerge from Norman's tool-centric analysis that would guide developers of Web browsers in deciding whether or how to support filtering of selected web sites when the browsers are used in elementary schools. This is not a matter of efficient cognition, but a matter of providing tools to meet differing social values in differing contexts. (p. 30)

For example, Dave Clark studied a company that produced Web filters for schools and libraries, and found that the company's sophisticated filtering tool led to significant internal dissonance about its development and use. In the company's early days, the principals (all software developers) frequently argued over applications of the tool (for example, some were against library filtering but for school filtering; some took a "local control" perspective that allowed them to argue for all use) and found themselves in the unfamiliar, uncomfortable position of having to decide on a case-by-case basis whether a Web site was "hate speech" or "obscene," despite having no specific training that qualified them to make such decisions. They outsourced these filtering decisions as soon as they could afford to and focused on developing the functionality of the tool (Clark 2001).

Technical communicators who wish to increase their organizational status—as Wick (2000), Rockley (2001), and Appen (2002) suggest—must move in the opposite direction, coming to see technologies not simply as tools to help end users and internal customers but as part of larger organizational strategies. As Nardi and O'Day suggest, "We need to keep this metaphor in mind, but we also need to look outside its boundaries. . . . Some design problems originate in a larger context—the social, organizational, or political setting in which a tool is used" (p. 30). In this metaphor, then, the "critical consciousness" of tool use so often advocated by technical communicators is limited in

its scope to the specific and immediate rather than to larger organizational, theoretical, or cultural questions. We suggest, as do Mirel and Spilka (2002), that technical communicators' current technology relationship allows them little space for changing and impacting the tools they work with.

To move ahead, to grow as a profession, and to have greater impact on the uses and understanding of the technologies about which we communicate. . . . We need to shift from defining our work and value primarily in terms of the communications we produce to focusing just as strongly on the strategic value to what we add to our work contexts and product designs and directions. Only through this larger role can we significantly affect technological usefulness, usability, learnability, enjoyment, and quality. (Mirel and Spilka, p. 92)

And we further suggest that the "technology as tool" metaphor can help illuminate the problem, leading us to see two key implications of our current relationship: limited design credibility and lack of organizational credibility.

Limited design credibility

Like Blakeslee (2002), technical communicators may feel that those in academia and industry share the goal of "affecting a world that is rapidly changing as it is shaped by new information technologies," and that "[o]ne point on which members of both the academy and industry agree is that this claim falls rightfully and predominantly to technical communication more than to other fields" (p. 42). But other fields have historically been reluctant to acknowledge or honor technical communicators' claims; many of the contributors to *Reshaping technical communication* (Mirel and Spilka 2002) worry over this very issue (also see Nahrwold and Bauer 2004).

As Nardi and O'Day suggest, a technology as tool perception limits the possibility of examining and understanding the larger contexts in which we work; we suggest that this focus has led technical communicators to more, not less, isolation, a separation between ourselves and other parts of our organizations that makes our inclusion in design discussions unlikely and rare.

This claim of isolation is not new; communicators have been arguing for less isolation for years, suggesting that technical communicators need to strategize to become better integrated with existing processes (Conklin 1993; Doheny-Farina 1992), more widely read by other researchers (Faber 2002; Schriver 2002; Debs 1993), and more strongly relevant to practitioners (Dicks 2002). Indeed, much of the appeal of knowledge and content management have been their capacities to tear down "silos" within organizations, better integrating organizational knowledge

and placing technical communicators at the new center (Rockley 2001; Wick 2000).

The larger problem here, we suggest, is training. Many in the field have argued that as user advocates, technical communicators should (at minimum) be consulted on product designs, but since so few communicators have been formally trained, for example, as interface designers, the case has not always been compelling. Because technical communicators have been trained to see and discuss technologies as tools for use in solving limited rhetorical problems, they have been unable to convince many others that their expertise can lend itself to larger design questions.

In the academy, for example, too many class projects (as with, for example, the recent XML-based service learning project we completed) use technical communication tools and knowledge to solve client-defined problems rather than identifying the problems from a larger, organizational, theoretical, and cultural perspective that would enable communicators to design new, more integrated and sustainable solutions aligned with both organizational and rhetorical goals. At the same time, too many practitioner projects are limited to the realm of "closed" documentation (Spinuzzi and Zachry 2000), to the shrink-wrapped, comprehensive documenting of products envisioned and designed by others. In either case, technical communicators limit the potential scope of their learning; they use tools creatively to solve pre-packaged, limited audience/purpose/context problems without exposure to or encounters with larger design and policy issues.

Lack of organizational credibility

A cause and effect of technical communicators' limited design credibility is their lack of credibility in their organizations at large, which tend to view technical communicators as cubicle dwellers of the same rank as software developers. Technical communicators have worked hard to achieve this status; Hart-Davidson (2001) notes that in recent years, their alignments have shifted from engineering to software, a change that has led to unprecedented but ultimately unsustainable growth of the field (p. 145). In fact, as information technology salaries have declined, many technical communicators have found themselves in the unfamiliar position of being rewarded like their IT colleagues. With developers, technical communicators share cubicle isolation, a focus on the needs of abstract outsiders and internal subject matter experts and designers, and, most troubling, their perceived status not as designers but "developers," workers who are viewed as sophisticated end users of tools developed by others.

This limited organizational credibility is compounded by technical communicators' long history of viewing themselves as humanists (Miller 1979), as rhetoricians whose

primary goal is and should be the accommodation of technology to a user (Dobrin 1983) instead of to a bottom line; business discussions are left to managers and other higher-ups. There is growing consensus, however, that this lack of business savvy is putting technical communicators out of the running for influencing critical business decisions that directly affect their roles in organizations (Dicks 2002; Carliner 2003). Managers are not coming to technical communicators for solutions to complex, rhetorical informational problems, the natural domain of technical communication.

Many argue that technical communicators' credibility on what others see as non-technical communication issues has suffered because they have not effectively instilled perceptions of themselves as being business advocates concerned with business needs, quick learners and adapters, proactive leaders, and content (not document) specialists (Giammona 2004; Carliner 2003; Hayhoe 1999), a need underscored by the results of Dayton and Bernhardt's 2003 survey of Association of Teachers of Technical Writing (ATTW) members: 25% of respondents reported that the most significant issue facing technical communication graduates is "the difficulty of asserting the value of technical communication in the workplace" (p. 35).

As a result, technical communicators' connection to newly developed or implemented technologies tends to be as end users of a new tool or as "reactive" (Ames 2002) documenters of already-designed products, with only often-abstract users and internal subject matter experts as their audiences. Their purpose is generally limited to savvy, rhetorical, end-user use of tools to help users use products that technical communicators had too little say in planning and designing.

Unfortunately, too often, the response of technical communicators to this limited input has been to turn to software training, which has become a primary emphasis for many in both industry and academia. In academia, the appeal is obvious; software training is what many students most want; when they explore technical communication job ads and issues of *Intercom*, they are most concerned with lists of required software they have never used.

Non-academic training is similarly focused on the functions of the software rather than its possibilities for design integration. The few communicators able to gain recognition for their new skills often do so under new titles—"knowledge manager," "information architect," fields with their own literature—which is only a problem if technical communicators don't worry about the long-term sustainability of the field at a time when STC membership rolls are in decline. We suggest that another, useful answer is that technical communicators should, through training, renegotiate the relationship the field has with emerging technologies.

NEW TRAINING APPROACHES

While thinking of technologies as "tools" is not inherently problematic, thinking of technology exclusively in this way is. Hayhoe argues that such a limited view directly threatens the sustainability of the field: "If we don't break out of the conviction that to be a technical communicator is about knowing all the tools, if we don't demonstrate how we add value, that we are a strategic part of the business, we are doomed" (quoted in Giammona 2004, p. 353). As we suggested earlier, others have identified similar problems with technical communicators' relationship with technology and argued for various solutions to the associated problems:

- ◆ Carliner (2003) argues for more development of durable skills that will help technical communicators make stronger business cases and for less development of production skills, which "anyone can pick up in a week with the right software" (p. 21).
- ◆ Wick (2000) and Hart-Davidson (2001) call for stronger frameworks for understanding and responding to technology development and use that will enable technical communicators to better position themselves as knowledge workers.
- ◆ Faber and Johnson-Eilola (2002) propose that training become "hybrid learning," strengthening academic and industry collaborations by providing a "context in which the value a technical communicator adds is an ability to constantly learn in each situation and integrate that learning into audience-specific solutions" (p. 141).
- ◆ Dicks (2004) argues for training for greater effectiveness at project management, financial management, and strategic planning.

We would like to add to the mix approaches that directly target the limited "technology as tool" focus maintained by both practitioners and academics (ourselves included) in a way that promotes the sort of organizational positioning that Hayhoe advocates. In what follows, we offer training approaches that will, we hope, initiate a re-thinking of technical communication's relationship with technology and thus help technical communicators establish stronger, more influential and reciprocal connections to related fields and within their organizations. We argue that the renegotiation should start with practitioners and academics approaching technology training to

- ◆ Train for design credibility
- ◆ Train for organizational credibility

Both of these training approaches will help technical communicators to establish credibility and authority and establish a larger framework to sustain and grow their practices.

Train for design credibility

Nardi and O'Day (1999) argue that the challenge for all technologists is "to introduce some critical sensibilities into

our evaluation and use of technology . . . to make a real impact on the kinds of technology that will be available to us in the future" (p. 22). But as discussed above, the lack of credibility of technical communicators as designers has long been a concern of the field, and we suggest that practitioners and academics alike should rethink how they train themselves and others as design experts to best promote the abilities of technical communicators.

Practitioners Wick (2000) suggests that technical communicators need "to develop a more comprehensive understanding of the technologies that serve knowledge management as well as business in general," which will help them position themselves in leadership roles and gain credibility as knowledge workers (p. 527).

Usability and human-computer interaction training have certainly enabled technical communicators to influence technology design, and technical communicators continue to make strong arguments for integrating usability in product testing. However, their role tends to remain that of user; they test existing systems and offer recommendations for improvement. Technical communicators are seldom asked to contribute their rhetorical expertise in early system design stages, which might prevent many of the design problems usability tests often reveal. Practitioners would be best served by a training approach that promotes the kinds of technology design knowledge that will be valued not only by their end users but by their organizations at large.

Technical communication is not, of course, the only field with limited perspectives on design, as demonstrated by Rebekka Andersen's experience in a University of Wisconsin-Milwaukee "Electronic business applications" course. For the final class project, she and the other students (mostly management information systems graduate students) were assigned to construct an e-commerce site.

During the first group meeting, each team member brought a proposed flow diagram of the site, including all required modules, pages, and locations for storing and retrieving data. Rebekka's diagram was crafted to demonstrate how users would be guided through the site and how the design would help users move easily among store information, shopping options, cart contents, and check-out. The team members, two of whom worked full time as Web programmers and developers, were shocked at the complexity of her drawing and argued that their job was not to make the site "pretty" or "user friendly" but to get it to work with as few easy-to-program pages as possible.

This is a familiar story to most technical communicators who have worked on multi-disciplinary teams. But the point here is that because of both the nature of the assignment and the predispositions of the group members, no one thought to consider the larger design issues of con-

necting their project to an organizational technology or business strategy; instead the focus was on getting to the tool-based generation of the site as quickly as possible.

Many technical communicators may have considered building a business case and asked "off topic" questions about the overall contexts and purposes of the site within a larger strategy, but too much practitioner training focuses, as in this academic example, on learning the functions of new tools. As a result, technical communicators are left to extrapolate the larger implications of the tools for their organizations on their own, and many of them have little specific training in doing so; technical communicators often fall back on their well-learned user-based understandings of the tools. Only a minority of technical communicators would be well equipped to articulate the broader functioning of a tool-generated project, the business and marketing strategies that are the elements more valued in industry and, not incidentally, less frequently outsourced.

To build design credibility and become essential to organizational design efforts, technical communicators need a broader contextual training that focuses on how technologists and businesspeople approach technology development and use; they need to understand how the tools they adopt affect their work from a business perspective. Furthermore, they must expand their understanding of business practices beyond what goes on in technical communication departments and discussions. More specifically, to have a greater impact on technology development, technical communicators need to

- ◆ Avoid vendor-driven software tutorials in favor of in-house assessment and positioning of new tools.
- ◆ Better articulate the contributions of their design efforts to product success and failure.
- ◆ Involve themselves in information technology discussions and journals such as the *International journal of technology management*, *Journal of the American Society for Information Science and Technology*, and *Journal of strategic information systems*.
- ◆ Be more proactive: make business arguments for inclusion in management meetings, get involved in academic discussions, bring management to in-house technology development workshops, and attend more in-house workshops and seminars on organizational processes and strategic development.

Academics While practitioner technology training has been focused primarily on tool use, academic instruction has primarily been focused on rhetorical training. In their 2004 survey of technical and professional communication programs, Allen and Benninghoff found that the top core topic emphasized in the 42 responding programs is rhetorical analysis with a concern for users (at 62%), followed by

document design, genre writing, working with a team, and editing for clarity and conciseness (p. 170).

Survey results also reveal that many programs are beginning to integrate critical analysis of technology as a core concept in their courses, which Allen and Benninghoff see as a prospering balance of humanities and technological skills (p. 179). We definitely agree that this balancing is a good start toward changing technical communicators' relationship with technology as well as the value placed on their technology work. However, we also suggest that critiquing the design, use, and effects of these technologies from a rhetorical perspective is not enough. To connect in influential ways with their organizations, technical communicators also need training in critical analysis of technology from organizational perspectives.

Technical communication's narrowly focused rhetorical training approaches moves the field away from arguments insisting that they must develop more durable skills; be stronger, more proactive leaders; and situate themselves as knowledge rather than production workers in their organizations (Faber and Johnson-Eilola 2002; Wick 2000; Hart-Davidson 2001). Current rhetorical training approaches (certainly a rhetorical focus could be broadened) also encourage them to conceive of these roles only within their local technical communication contexts. As Faber and Johnson-Eilola, suggest, "neither current academic programs nor existing professional practices in technical communication are in a strong position to create and support those kinds of leaders" (p. 141).

Clearly, even if technical communicators become more proactive leaders and gain more durable skills, they have to become the kinds of leaders and knowledge workers who have the business savvy needed to cross boundaries separating them from organizational technology goals and practices. Technical communication's focus on training students to be rhetorical experts has been far too narrow, and this fact is evidenced in the results of Allen and Benninghoff's survey and Dayton and Bernhardt's 2003 survey of ATTW members, which both reveal the absence of "business" as even a topic in core technical communication courses.

◆ Focus on organizational problems as projects

Although academics have begun to integrate more approaches to technology development training by adding courses such as information architecture, information design, user-centered design, content development and writing for the Web, and knowledge and content management, they have not always done so from a business perspective. Expanding technical communicators' understanding of human/technology relationships certainly helps them to identify rhetorical problems embedded in uncritical technology design and implementation, but it rarely

affords them more flexibility in influencing technology development at the organizational level; because management tends to view the design and implementation of communication technologies as business and information technology problems, technical communicators' expertise is not often sought out. Meanwhile, content management technologies continue to redefine technical communicators' roles in organizations, and management and IT specialists continue to implement big content management systems without critically examining the rhetorical assumptions behind the technologies.

For example, vendors of AuthorIT and Documentum are selling their technologies on claims that technical communicators too rarely get a chance to critique. AuthorIT, in particular, attempts to attract management's attention on this major selling point: "Imagine your content has been bound by ad hoc formatting, locked into a specific structure, and constrained by context. In AuthorIT, it is free of those constraints" (<http://www.authorit.com>). For management, this claim means increased process and production efficiencies and money saved. For technical communicators, this claim raises questions about the role of context in comprehension and usability, which technical communicators know can negatively impact an organization's bottom line.

Academics are doing a better job of training students to identify the rhetorical problems embedded in such claims, but they need to do an even better job of training students to integrate their rhetorical approaches to technology within business problem frameworks. If technical communicators are to have a say in the design and implementation of the communication technologies that directly affect their work, they must be trained to sell their technology design arguments to management.

Although students arguably graduate as rhetorical experts, academic training in technical communication tends to give them limited ways of thinking about tools. In most courses, for example, academics give students rhetorical projects and train them to examine problems from rhetorical perspectives. They tend to teach genres as rhetorical exercises and tools as means to accomplish particular rhetorical tasks; software such as PageMaker, DreamWeaver, Photoshop, and FrameMaker is often introduced as a useful tool for achieving better looking and more useable documents such as manuals, reports, Web pages, and help. Ultimately, students carry this limited understanding into their fast-paced organizations, where they are then, more often than not, given additional hands-on tool training with little time to make sense of their tasks in broader

business contexts.

- ◆ **Focus on organizational audiences** Part of the reason that academic trainers have not incorporated broader contextual technology training is that they have been focused on too narrow of an audience. Academics train students to focus on end users, as they should, but this kind of training is limited to one kind of audience—the ends users that exist, often in the abstract, on the other side of technical communication proprietary tools. Academics have, for the most part, neglected business managers and IT specialists as audiences in their training. Refocusing audience analysis to include managers and IT specialists' needs, as well as product users' needs, would help technical communicators better critique and understand their relationship with business management and business technology.

Faber and Johnson-Eilola (2002) identify technical communicators' limited way of thinking about audience as yet another reason why organizations seldom understand what technical communicators do: "unlike knowledge workers, who bring specific solutions to specific problems, we are teaching students to build products for an unidentified and often unknown audience" (p. 140). Most often, academics have the best intentions when training students to tailor their communication to particular rhetorical contexts; however, by largely neglecting the role of business contexts in defining the rhetorical contexts for which their students write, they are not preparing students to take on the kinds of influential roles that they argue for in their future workplaces.

For example, in the University of Wisconsin-Milwaukee's professional writing program's (now under revision) project management course, students are taught genre-based skills as they create project plans, Gantt and PERT charts, time sheets, and progress and planning reports, and usability testing. They work collaboratively on client projects with designated project managers working in three to four week intervals.

While collaboration and time management are essential skills gained in this course, students are not trained in understanding the greater business and cultural implications of their projects on their participating organizations and the community. They are trained to meet client goals and work within client constraints ("client" often means a local nonprofit or school) as they develop projects such as Web sites, pamphlets, and manuals. They leave the course, however, without a clear sense of how their project is perceived by management, how the tools they used to produce the project fit into larger organizational contexts and technology development initiatives, or how other organizations,

such as sponsors and advertisers, impact the client goals and constraints that ultimately shape project goals and project success. This kind of limited contextual training does not help students make strong business cases for their technology work when they are hired on as practitioners.

- ◆ **Adopt technical program models** Many technical and professional communication courses are self-contained and taught independently of each other, with students taking them in no particular order and often having little understanding of how one new skill set relates to another. While writing skills still remain a key value in technical communication training, as we think they should be, core technical communication theory and application courses tend to focus on writing in organizations from theoretical perspectives that do not account for the larger organizational goals and practices driven by competitive markets and information technology research and innovations.

To make important courses such as project management more useful, academics need to broaden the metaphorical understandings students have of technology because students tend to think of technology as tools to be put to rhetorical tasks. We argue that one way to do this is to teach students business technology discourse.

Although we do not expect or see a need for programs to overhaul their curricula, we do think that future curricular goals might be expanded to include adopting more of a technical college program model that has, at its core, business and technology management training. At Herzing College (with six campuses in the U.S. and an online division), for example, students working on business and technology degrees are required to take a sequential core of courses (not electives) in business principles and management, e-business concepts, team development and group management, decision-making, organizational behavior, and project management, in addition to their technical emphases, which might include computer science, management information systems, accounting, or engineering. Offering more sequential core courses as is done at Herzing will help give technical communication students the broader contextual training they need to gain the respect of managers and IT specialists, as they will be able to better articulate the significance of their technology work and the value it offers to their organizations' bottom lines.

Train for organizational credibility

We have argued that renegotiating technical communicators' relationship with technology must begin with training

practitioners to better connect our technology practice with organizational technology practice. However, we also argue that academics need to change how they tend to conduct business in their departments and organizations. Their isolation from larger technology goals and practices has largely resulted from not connecting their business practice to the larger practices of their organizations.

Practitioners One of practitioners' primary venues for sharing, critiquing, theorizing, and improving business practices is through field-specific conferences. The Society for Technical Communication (STC) Annual Conference is the profession's largest, most well attended conference, providing an excellent opportunity to network and learn more effective and efficient ways to meet users' needs and improve technical communicators' status in organizations. While we agree that attending conferences and sharing technical communication work and ideas is imperative to technical communication's continued growth as a profession, as suggested earlier, we are concerned that "how-to" tool discussions have become the leading conference trend.

Our field's production-focused relationship with technology is clearly evident in a review of STC conference proposal and proceeding topics over the past five years. Out of 14 conference proceedings papers on technology for the 2004 conference, for example, only one addressed a non-tool focused topic: "Transforming your career: Contributing strategically to your company or client" (Ames and Jensen 2004). The 13 other papers ranged from case studies on "Implementing a content management system" and "Using HTML as a single source solution" to "Graphic file transformation" and "Achieving minimalism through interactive multimedia."

As indicated in these topics, as well as vendor-based training, practitioner business practices have been primarily focused on findings ways to efficiently integrate the latest version of a tool or to adopt a technology solution that works well for a particular group on a particular project. So far, these training focuses have not been very effective at helping technical communicators gain organizational credibility.

- ◆ **Train to be business advocates** Practitioners can begin to make stronger connections to larger business practices by training to be better business advocates. In their STC Annual Conference paper, Ames and Jensen (2004) argue that technical communicators have trained to be "commodities." Defining commodity as "a product or service whose only differentiating factor is price" (p. 119), they argue that technical communicators who do not contribute strategically to their organizations are easily viewed as

expendable. While technical communicators' rhetorical training has prepared them to be strong user advocates, it has not prepared them to be "strategic contributors" to their organizations and business advocates. To better connect their business practices, practitioners need to

- ◆ Understand their organization's "financial model, management structure and approach, values, and strategy" (Ames and Jensen, p. 121)
- ◆ Integrate business technology training in their business practices at their conferences, in their workshops, in their online and face-to-face discussions, and in as many publishing venues as they can
- ◆ Change their conception of the goals of STC, *Intercom*, *Technical communication*, and similar venues for sharing their knowledge to include stronger business connections
- ◆ Focus less on case studies about tool use success and "how to" workshops at their conferences, and focus more on topics that will help technical communicators better understand business perspectives on technology development

- ◆ **Train to be business-minded mentors** One way to train new hires and interns to be more business minded is to adopt stronger school-to-work transitions through mentoring programs that not only involve technical communication support, but also business manager and information technology specialist support. A good model for the kind of mentoring training we think will help technical communicators gain organizational credibility is described by Maggiore in his 2004 STC Annual Conference paper "Training techniques for interns/new hires in information technology."

He outlines how the internship program used by IBM's Disbursements Application Support Area mentors undergraduate computer science students through a rigorous training program that involves "enterprise-wide support." We draw heavily from Maggiore's description to show how technical communicators might develop a new, more business-minded approach to mentoring interns and new practitioners.

In the IBM internship program, new hires in information technology are mentored first on the business environment that goes with the job and second on the technical aspect of the job. New hires are trained to understand that "applications are not written because people like to write code." Instead, he says, "things are done with anticipation of how much time will be saved, or how much revenue will be generated" (p. 155). Maggiore describes the training process as follows:

Only after gaining a clearer understanding of the business environment can the interns more clearly see how [their technical knowledge] can provide the toolbag to solve the business problem One technique that has worked well in acclimating our interns to the business and technical environment is to initially give them assignments in the updating of our project management applications that track our programming change requests as well as our inventory. This allows the interns to see the business side of the assignment, while getting to use the programming skills needed to implement the necessary changes In parallel with the teaching of the core skills of an office environment, the core technical skills can be taught. (p. 156)

This mentoring model forces IBM interns to rethink their approach to technology use. Instead of thrusting interns into technology projects where they can immediately use their technical skills to accomplish familiar tasks, IBM mentors require interns to first become acquainted with business processes and how those processes affect technology work. In technical communication, practitioners tend to place more emphasis on helping new hires quickly learn the technology necessary for a specific task than they do on helping new hires understand how their rhetorical knowledge can be used strategically to solve larger business problems.

To be better business minded mentors and, thus, develop more contextualized business technology training for practitioners, we suggest that practitioners adopt similar models to that of IBM's internship program. Such integrated business training will help new practitioners understand how technology fits in with greater organizational goals and how it impacts multiple audiences beyond end users.

Academics In addition to developing a new approach to technology development training, we suggest that academics adopt more organization-minded approaches to administering programs specializing in technical communication. Undergraduate and graduate technical communication programs are developing faster than ever, yet many academics struggle to make strong business cases for the value of their programs in their own departments. This has been particularly true in English departments, where academics in technical communication have often not been very effective in demonstrating to others in the department and university that training in this field must include sufficient funds for technology integration and resources to equip students with the skills they need to succeed in school to work transitions. Although each program faces unique political, financial, and social challenges, we argue that aca-

demics can do a better job of making stronger business cases for what they do in their departments.

◆ **Develop interdependent courses** One main problem in academics' business practice is that their courses are most often taught independent from other courses in their programs, both core courses and electives. In Dayton and Bernhardt's 2003 survey of ATTW members, respondents reported curriculum coherence was a primary problem facing graduate programs (p. 37). This not only results from departments that are unsupportive of technical communication goals but also from how courses tend to be taught. In most cases, administrators ask instructors what courses they are interested in teaching and then put the responsibility on them to teach the courses in the best way they see fit. As a result, instructors often develop syllabi with limited knowledge of how their course objectives fit in with the objectives of other core and elective courses. While broader program goals are used to guide course development, coherence between courses often lacks, and students generally are able to take courses in any order that they choose.

To incorporate the broader contextual training we have argued for, academics must begin attaching course goals with broader business-, technology-, and rhetoric-centric curricular goals. Academics' self-contained, rhetorically focused courses, though they once redefined and distinguished our field, thanks to the work of Miller and Dobrin and others, are no longer enough to help them position technical communicators as leaders and knowledge workers in organizations.

New, revised program goals have to come from the top; they have to come from administrative meetings focused on developing programs that offer interdependent courses that equip students with the theoretical and hands-on training needed to enter the workforce and begin changing perceptions of technical communication work. Academics also need to do a better job of establishing a set of standards for graduates agreed on by both industry and academia. Without such standards, employers have little choice but to write job descriptions listing software tool requirements. Renegotiating technical communicators' relationship with technology through academic and industry training, we hope, ultimately, will enable technical communicators to drive their job descriptions, not be driven by them.

◆ **Build relationships with other programs** While academic technical communicators have discussed the growing disconnect between technical communication and their sister fields of literature and

composition, they too often do not focus on the need to build new relationships with management, business, and information studies programs, relationships that are increasingly critical to their ability to sustain the field. Blakeslee and Spilka (2004) argue that academics need to maintain collegiality with those in related fields such as rhetoric and composition (p. 85), and we agree. However, to become more visible in fields that directly impact the work we do as technical communicators, academics need to work harder to establish relationships in academia with fields that emphasize industry.

Many of these programs are great models for how academics might develop new training approaches for their programs. In business administration, for example, students go through a rigorous program emphasizing analysis, strategy, and competitive advantage—all key business concepts for understanding and developing successful organizational goals and processes. Technical communication students, trained to think analytically and strategically about their research and problem-solving processes, are also trained to think in these ways, but often only in terms of technical communication.

Academics need to also look for more collaboration opportunities with information studies and related fields, as they have a lot to offer technical communication programs in terms of curricular development models and expertise. They often offer elective courses that would help technical communication students understand conceptual aspects of information science, information technologies, and information management from an information technology perspective, a perspective academics in technical communication have struggled to teach as a result of their rhetorical emphasis and technology development de-emphasis. Davis (2001) and others agree that academics must develop a broader knowledge base by collaborating more directly with colleagues in other disciplines and learning from them.

- ◆ **Influence training through better research dissemination** To effect change, technical communicators need to take an entrepreneur approach to how they conduct and disseminate their research. Being involved in larger technology conversations means reading business and information technology journals and trade publications, even though managers and specialists in those fields rarely read those in technical communication, contributing to business and information technology online and face-to-face discussions, and training practitioners and students to understand business practice.

Arguments that technical communicators need to better disseminate their research beyond their own journals and discussions (Blakeslee and Spilka 2004; Schriver 2002) are not new, but technical communicators have done little to change their practices. Many in the field have pointed out that technical communicators continue to publish exclusively in their own journals and venues, such as *TECHWRL*, *Technical communication*, *Journal of business and technical communication*, *Technical communication quarterly*, and a number of online forums. Not only does this practice prevent technical communicators from having significant impact beyond their field, it further isolates them from other fields. They seldom consider publishing in venues outside of technical communication such as the *Harvard business review*, *Journal of knowledge management*, *MIT Sloan management review*, *Business process management journal*, and *Journal of information technology cases and applications*. If technical communicators are to have a voice in other professions and develop stronger connections to their own profession, they have to start contributing to the business and information technology discussions that directly impact their work and others' perceptions of who they are and what they do.

Furthermore, though technical communicators frequently use the works of other fields in their research, many have observed that few outside the field seek out the technology research or expertise of technical communicators (Wick 2000; Blakeslee and Spilka 2004). In fact, few have acknowledged this work in discussions of knowledge management, content management, information design, and multimedia writing. Technical communicators are simply too isolated in their own journals. In their attempt to create a more unified field, they have cut themselves off from other fields.

If technical communicators are to be taken more seriously as technology planners and thinkers, they need to develop strategies for better conducting and disseminating their research, and for developing and promoting their own technological innovations.

CONCLUSION

We are arguing, ultimately, for an entrepreneurial understanding of technical communication for both academics and practitioners. The academics who are most successful at building the kinds of new connections we're suggesting are those who have actively sought industry collaborations, created long-term sustainable projects for students, and brought new money and resources into their departments. The practitioners who have moved laterally and up in organizations are those who have best understood how to articulate their connections to business and gain the op-

portunity to demonstrate their abilities as designers of company- and industry-wide communication projects and tools. Sustaining the technical communication field depends on their abilities to change how they train themselves and others for the long term. **TC**

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