Layered Literacies: A Theoretical Frame for Technical Communication Pedagogy

Kelli Cargile Cook
Utah State University

This article proposes a theoretical frame for technical communication pedagogy based on six layered literacies: basic, rhetorical, social, technological, ethical, and critical. The layered literacies frame advocates diverse instruction in technical communication programs, ranging from the ancient art of rhetoric to the most contemporary of technologies, from basic reading and writing skills to ethical and critical situational analyses. The article also suggests how the frame can be applied to a program of study or individual course in order to establish teaching objectives; develop course and lesson activities; and assess pedagogical materials, students, and programs.

As a course of study, technical communication claims its roots in late nineteenth-century engineering instruction (Connors; Kynell, "Technical"; Kynell, Writing; Longo). These early courses were developed and designed to improve engineering students’ reading and writing. Instructors’ first pedagogical goals, therefore, were basic literacy skills. “This period was,” according to Robert Connors, “...a time when, by the schools’ own later admissions, they turned out large number of otherwise competent engineers who were near-illiterates” (331). Practicing engineers in the workforce were dismayed by graduates’ illiteracy and called for reforms. Among these reforms was an infusion of humanities instruction into engineering curricula. The resulting instruction often included technical writing, a course that focused both on mechanical and grammatical correctness and on the study of models of engineering documents.

As technical writing courses have become more complex during the twentieth century, so too have their pedagogical goals. No longer are basic literacy skills of reading and writing the primary concern of such courses. Today, technical communicators need to be multiliterate, possessing a variety of literacies that encompass the multiple
ways people use language in producing information, solving problems, and critiquing practice. "Workplace literacy," a term Paul Meyer and Stephen Bernhardt use to describe the multiple literacies of twenty-first century technical communicators, "includes not only the traditionally defined literacies of reading, writing, and math, but also computer skills, oral communication, teamwork, problem-solving, and effective interpersonal communication" (86). As prerequisites of professional success, multiple literacies have been well documented both in federal and workplace literacy reports (1991's U.S. Department of Labor Secretary's Commission on Achieving Necessary Skills [SCANS]; 1987's Workforce 2000 [Johnston and Packer]; and 1990's Scholarship Reconsidered [Boyer]) and in recent technical communication literature (Ecker and Staples; Meyer and Bernhardt; Wahlstrom).

In reviewing the literature relating technical communication pedagogy and workplace literacy, Pamela Ecker and Katherine Staples note that "technical communication requires multiple, integrated, and interdisciplinary skills" (376-77). To integrate these multiple skills into instruction, technical communication programs have responded with "research, teaching, and curriculum development in such technical communication areas as collaboration, gender studies, workplace ethics, and the nature and teaching of technology" (378). These approaches have incorporated the teaching of multiple literacies into technical communication instruction and have come to ground the teaching—through goals, assignments, and activities—that instructors employ in technical communication courses. Similarly, in "Teaching and Learning Communities: Locating Literacy, Agency, and Authority in a Digital Domain," Billie Wahlstrom advocates layering multiple literacies into classroom instruction so that technical communication classrooms become learning communities in which literacies are not isolated but integrated and situated through a complex of classroom goals and activities.

Two problems face technical communication instructors as they construct learning communities with integrated, situated, and multiple literacy-learning opportunities. The first is the lack of a concise identification of literacies that technical communicators should possess. This problem does not result from a lack of literature on the literacies that technical communicators should acquire; rather it results from the breadth of that literature. The second problem is the lack of understanding about how these multiple literacies can be integrated, situated, or, as Wahlstrom advocates, layered into programs, courses, and specific course activities. While a number of pedagogical frames in the past have addressed the second problem of integration and application (Blyler; Souther; Thralls and Blyler; Thompson; Meyer and Bernhardt), no single frame fully incorporates all of the literacies currently held to be important for technical communicators' workplace success. In addition, many introductory technical communication textbooks continue to isolate instruction in
certain literacies (such as ethical and technological instruction) into individual chapters rather than integrating these literacies throughout the course of study. Without an integrative pedagogical frame, instructors may find themselves, as Nancy Blyler argues, without an “overview of technical communication pedagogy and its practices, a necessity for the identity of any discipline” (110). Consequently, they may struggle to define course goals or define them too narrowly, and they may have difficulty developing situated activities and assignments that achieve course goals. This problem is especially significant considering the number of technical communication instructors who teach courses without degrees or with little, if any, course work in the discipline. An integrative pedagogical frame can assist these instructors by clearly defining the literacies that students need to possess to be successful technical and professional communicators and by providing examples for how instructors can articulate their course goals and assess them in student work. Such a frame can also benefit program directors as a method of developing goals across courses, assessing student achievements upon program completion, and assessing programs themselves.

To provide the overview for which Blyler calls and to address these problems, this article has two purposes. First, it synthesizes and classifies current thinking about technical communication pedagogy into a framework encompassing six key literacies—basic, rhetorical, social, technological, ethical, and critical. Second, with this frame in place, it demonstrates, through examples, how the frame can be applied to a program of study or individual course in order to establish objectives, develop activities, and assess both students and programs.

Six Key Literacies for Technical Communicators

Pedagogical frames historically have assisted writing instructors as they articulate their programs, courses, and activity goals. In some cases, these frames have been extremely broad in scope, such as the schema developed by James Kinneavy to classify modes of discourse. Other frames, in contrast, have taken a narrower scope, examining, for instance, how a specific theory, such as social theory, can be adapted for classroom activities and practice (Thralls and Blyler). Early theoretical frames for technical communication pedagogy developed from the theories first articulated by scholars in composition and rhetoric, such as Richard Fulkerson and James Berlin, but as the field has matured, educators in technical communication have suggested a variety of pedagogical frames specific to the field (Blyler; Souther; Thralls and Blyler; Thompson; Meyer and Bernhardt). What the technical communication pedagogical frames share is an underlying assumption that workplace writers need a repertoire of complex and interrelated skills to be successful. Instructors can no longer simply
provide students with opportunities to discuss form, discourse types, or the writing process. Such discussions must be further supplemented with activities that promote collaborative team-building skills and technology use and critique. The workplace, as we move toward globalization, also requires students to develop multicultural awareness and skills for communicating with diverse audiences who look, speak, and think differently than they do.

While these historical frames progressively complicate technical communication instruction, none of them fully articulate the multiple literacies necessary to succeed in the twenty-first century workplace. What is needed is a more integrative frame that incorporates all of these literacies into a single articulation of technical communication pedagogical goals. The layered literacy frame, described in the following section, synthesizes these components into six key literacies, including instruction in diverse topics ranging from the ancient art of rhetoric to the most contemporary technologies. Included in it are strategies for learning to critique the workplace and work within it for positive change.

For pedagogical guidance, instructors will most likely adopt and employ the layered literacy frame for a variety of courses within a program of study since no single course could or should be expected to produce multiply literate students in one semester. Nor will these literacies frequently be taught in isolation; rather they should be taught in conjunction with one another or layered within the course or program curriculum. For clarity's sake, however, the following description of the six literacies does differentiate them, first by identifying the specific literacy's key goals and then by providing support, from a synthesis of recent literature, for the literacy's inclusion in the frame. In addition, each literacy description includes suggestions for integrating and strengthening its instruction through a layered approach.

**Basic Literacy**

The most basic and earliest of literacy goals in technical communication instruction was learning to communicate well and clearly. Historically, basic literacy—defined originally as the ability to read and write—was the foremost and sometimes only pedagogical goal of early technical writing classes. Early textbooks reflected this focus and frequently taught the 5C's—completeness, consideration, clarity, courtesy, and correctness—as the principles of business writing (Adams). Until World War II, this view of business writing as the application of formal rules, principles, and forms dominated the field.

As technical writing's student populations became more diversified, including students from many disciplines, some instructors speculated that pedagogical goals that focused solely on rules and forms were no longer sufficient to meet all their students' needs. As a
result, technical writing moved to a more formal definition based on "clarity, precision, and efficiency" (Adams 59). The more accurate and precise the word choice and sentence structure, the more clearly the truth could be seen through the windowpane language (Miller). A similar pedagogical stance held when instructors taught students about document design and graphical representations in technical communication documents. Conventions and rules for clear and accurate document design and graphics governed how documents looked and how data was visually represented.

The result of this rule-governed approach to basic literacy was a narrow view of writing and document design conducted solely through accordance to rules and principles of grammar, mechanics, style guides, generic forms, and design guidelines. Restricting literacy to such codified skills and forms, consequently, denied the significance of writers' choices for their specific audiences, discourse communities, and social contexts. It also limited their abilities to solve writing problems because solutions were so narrowly defined by rules and conventions.

For these reasons, limiting basic literacy instruction to rules and templates lessens its value and diminishes its applicability in diverse writing situations. These limitations, however, can be overcome when basic literacy is taught by layering it with other literacies. Layered with other literacies, basic literacy in reading, writing, and document design is no longer a formal set of rules and principles to which a writer must adhere at any cost; rather it becomes a method for gathering information more efficiently; making appropriate reader-based decisions about data presentation, document form, and document construction; engaging readers through effective and appropriate reader-based writing techniques; and responding to and within complex writing situations. Making informed decisions about usage, grammar, mechanics, styles, and graphic representations based on knowledge of readers and writing situations is the goal of a layered basic literacy.

To assess whether students possess basic literacy, instructors will need to do more than evaluate students' writing for correct usage, grammar, and spelling. They will need to ask students to explain why choices are correct or incorrect, given their specific audience, writing situation, or purpose. For example, students might be asked to identify specific stylistic or document design choices they made for their documents and then to support these choices with reasons for their application. Such assessment may include evaluation of students' knowledge of conventional rules of correctness and accuracy, but it moves beyond knowledge of rules to knowledge of the effects of discourse communities, conventions, and specific contexts on writers' choices. Discussions such as these might take place in a variety of ways from assignment post-mortem sessions to short memos attached to assignments.
Rhetorical Literacy

Because it affects so many decisions writers make, rhetorical literacy is most often viewed as a multifaceted knowledge that allows writers to conceptualize and shape documents whatever their specific purpose or audience. More specifically, rhetorical literacy refers to these skills or competencies:

- An understanding of the audience’s role in shaping effective discourse
- The development of analytical skills for identifying and responding to the audience in terms of the communication’s purpose and the writing situation
- Knowledge of and the abilities to choose and apply invention strategies, depending upon specific audience, purpose, and writing situation
- An awareness of one’s own ideological stance as well as the given audience’s stance(s)

This definition of rhetorical literacy requires students to understand and be able to analyze, evaluate, and employ various invention and writing strategies based upon their knowledge of audience, purpose, writing situation, research methods, genre, style, and delivery techniques and media. It offers no exact formulas for devising solutions to writing challenges; rather it strives to develop in students a set of fluid skills and reflective practices that might be employed successfully given any audience, purpose, or writing situation. In other words, these skills provide students with the rhetorical tools to create and shape meaning within the contexts of their audience, purpose, and writing situation.

How then do we identify rhetorical literacy in our students’ work? To demonstrate that they possess rhetorical literacy, students should be asked to create a wide variety of documents for specific clients and specific situations and asked to explain why their documents are appropriate within these contexts. To identify audience and purpose successfully, students should also be able to use organizational knowledge and research strategies to determine how organizational constraints may affect an audience’s receptiveness to their document and may shape their document’s purpose. Skillful use of research strategies is also demonstrated when students gather, analyze, and interpret data included in their documents. Employing different kinds of research strategies also provides students with opportunities to show how well they can manage complex information structures in order to create a persuasive and argumentatively sound document. Rhetorical literacy can also be identified when students demonstrate other literacies, such as basic literacy, by choosing appropriate genres, organizational schemas, and graphical displays or by making reasoned stylistic or graphic choices for their specific audiences or writing contexts.
Social Literacy

Social theory and the literacy associated with it have long been a staple of technical communication classroom activities, but such literacy has gained further prominence as its role in workplace practice has emerged. Research in workplace practices has demonstrated the crucial role social skills play in technical communicators’ success or lack of success as members of organizational teams. For success, among the most important of these social skills is the ability to collaborate and work well with others.

Collaboration, as a component of the writing process, first appeared in Aristotle’s work when he defined dialectic rhetoric as a collaboration or interchange between rhetors and their audiences. In the Rhetoric, Aristotle defines rhetoric as a method of identifying the best means available to persuade a given audience at a given time. The rhetor is always involved in a social situation, either trying to persuade a specific, known, physically present audience or to counter another equally prepared rhetor’s point. The social situation then determines the purpose of the speech: “For of the three elements of speech-making—speaker, subject, and person addressed—it is the last one, the hearer, that determines the speech’s end and object” (Aristotle 31–32). Karen LeFevre expands the significance of collaboration to include not only the audience for whom the document is written but also other writers and other texts with which the writer has had contact. Such collaboration may be invisible at times, but the influence of others who may not be directly collaborating with the writer, she notes, is significant nonetheless.

Since LeFevre’s Invention as a Social Act, similar arguments promoting writing, specifically invention, as a social process have appeared. In many of these arguments, computers have been recommended as a means to facilitate student collaborative invention (Barker and Kemp; Hartman et al.; Duin and Hansen). Other authors have sought to define more clearly how technology enables a new view of audience. Robert Johnson, for example, suggests a new model, the involved audience, for articulating the rhetorical audience (“Audience Involved”). The involved audience is not a reader who helps during the first and last stages of writing (invention and peer revision exercises) or a coauthor who assists with single text production. Rather, the involved audience “is an actual participant in the writing process who creates knowledge and determines much of the content of the discourse... The involved audience brings the audience literally into the open, making the intended audience a visible, physical, collaborative presence” (Johnson, “Audience Involved” 38). The involved audience, however, is not always physically present with the author, although with the assistance of computer applications, it can electronically assist in the decision-making, problem-solving, strategy-building act of invention.
The following workplace research has documented the broad role of collaboration and its significance in the writing process. An early study at Exxon ITD found that “the activity of writing demanded practitioners develop a kind of social consciousness of the organizational environment... Documents were both a means of self-analysis and self-projection” (Paradis, Dobrin, and Miller 293). Similarly, in a review of early workplace writing research, Mary Beth Debs found that “consistently we find in industry that the production of any text is a social process. The activities of this social process are based on the day-to-day ongoing talk embedded in the context; thus the writing process is often 'submerged’” (36). These findings illustrate how collaboration can be either direct (coauthoring, for example) or indirect (talk, brainstorming, strategizing), formal or informal. Collaborative processes are frequently built into corporate information development and document cycling processes (Paradis, Dobrin, and Miller; Grice). While this research has focused on collaboration as a form or means of production, other research has explored social literacy skills in workplaces that employ electronic communication technologies. Collaborative studies in this research strand have examined how computer networks have been used to support (and sometimes challenge) traditional workplace collaboration (Wierenga et al.; Farkas and Poltrock).

The classroom outcome of such research is curricula and activities designed to promote social literacy, especially as it relates to collaborative skills. Students can demonstrate their developing social literacy skills by working effectively with others in a variety of capacities—as members of a document cycling team, for example, or as individual collaborators who support another writer’s invention processes through e-mail correspondence. Socially literate technical communicators can also identify and work within organizational settings (and sometimes work to reform these settings). They communicate a purpose or intention for their collaborations (Burnett, White, and Duin), and they handle conflict within groups positively and constructively. In addition, they recognize discourse communities’ social conventions and expectations for document design and graphical display of information.

To assess students’ social literacy, instructors might incorporate team reports into their assignments. In these team reports, team members log and describe their activities as well as suggest constructive changes that they and their team members might adopt to improve their collaborative skills. Electronic discussion forums can also serve as excellent means of assessing team collaboration skills. By requiring students to record team meetings electronically, instructors will be able to oversee team activities and document assignments as well as obstacles or conflicts teams may encounter. To document more complex social literacy, such as an understanding of organizational settings, students might interview professional writers and
explore with them the organizational culture of their workplaces. With this information, students can participate in discussions, either face-to-face or electronic, or complete writing assignments that require them to share what they've learned and to identify similarities and differences in organizational settings in which professional writers work.

Technological Literacy

Technological literacy has only recently begun to appear in technical communication pedagogical frames, yet it has become an integral component of most technical communication instruction. Originally articulated in terms of students' knowledge of specific computer applications, technological literacy is now more broadly defined as having these characteristics:

- a working knowledge of technologies that helps professional communicators to produce communications, documents, or products;
- an awareness of how these technologies promote social interactions and collaboration;
- an ability to research how users work with technologies; and
- an ability to critique this research and act upon it to make decisions and produce documents designed with and for users.

By its earliest and most basic definition, technological literacy means that communicators must know how to use computer applications. Technical communication employers often desire new hires with a wide knowledge of software applications, including standard word-processing and database applications as well as desktop publishing applications, hypertext and database development tools, and graphic illustration software.

Technical communication instruction, however, strives to advance students beyond knowledge of software applications. To do so, a layered literacy approach to instruction requires students to employ technology to develop their reading and writing skills (basic literacies) in networked computer classrooms or labs as well as to develop their social literacy through local area and/or wide area networked collaboration and document sharing activities (Barker and Kemp; Spitzer; Flores; Selfe, "Technology"). The move from local area networks to wide area networks (through Internet-based applications) has provided further opportunities for students to develop technological literacy through a layered literacy approach. In many technical communication courses today (whether on-site or online), students use e-mail, listservs, Web-based bulletin boards, chat rooms, and MOOs to communicate and collaborate with one another. These technologies are profoundly influencing how students work within the classroom and later within the workplace.
But proficiency is only one component of technological literacy. Technical communication students must also be able to serve as facilitators for the users of technology. As facilitators, technical communicators “accommodate technology to users” (Dobrin 108) and serve as user advocates during product design and implementation. Technical communicators are thus “intimately connected to users of technologies” (Johnson, “Complicating” 76). Because of this intimate connection, they must develop analytical skills that allow them to observe and gather data about users’ preferences and requirements for technology, and they must develop writing skills that allow them to incorporate this knowledge into documents to support these preferences and requirements. Supported by social and rhetorical skills necessary for their interactions with users, this form of technological literacy casts technical communicators in three roles: as rhetoricians who study audience knowledge, preferences, and requirements for technology; as architects who take this research and use it to construct technology documentation to meet audience needs; and as usability researchers who take their written product back to the audience to critique how well the documentation and the technology work for the audience.

To provide students with a sense of their roles as user advocates or facilitators, recent technological literacy instruction often incorporates principles of usability and user-centered design. These principles require students to apply in very specific ways both technological and rhetorical literacies. For example, a user-centered design approach might ask students to evaluate and describe not only who will use a product, what tasks are completed with the product, and where the tasks are completed but also how this knowledge fits into a more comprehensive context, considering the user’s situation when employing the product. More specifically, user-centered designs require students to discover what medium (paper or print, for example) best fits the user’s situation and task, what specific activities the user will be completing with the product, and how the user prefers to learn about a task while at the same time completing it. Such analysis moves beyond typical audience analysis that attempts to capture the character of a diverse audience in broad strokes toward an audience or user analysis that requires active audience participation in the design itself. With user-centered designs, users actively participate in product development and design, and technical communicators facilitate, observe, and record their participation in order to produce documents driven by user problems and solutions. Records of these interactions with users or reports can help instructors to assess how well students have accomplished their goals as facilitators, moving beyond using technology toward making knowledge with and about technology. These reports can also be very effective means for assessing other literacies students possess, including basic, rhetorical, and social literacies.
Ethical Literacy

Ethical literacy can be defined as both technical communicators' knowledge of professional ethical standards as well as their abilities to consider all stakeholders involved in a writing situation. The movement to make technical communication students more ethically literate can be traced to the late 1970s when the Society for Technical Communication (STC) first developed its code of professional ethics. By the 1980s, the importance of ethical instruction in technical communication courses was the focus of a special issue in IEEE Transactions on Professional Communication (Doheny-Farina) and the Society for Technical Communication's book Technical Communication and Ethics, edited by R. John Brockmann and Fern Rook. In many 1980's articles and texts, authors held a special interest in building a theoretical framework for teaching ethics (Wicclair and Farkas; Clark; Speck) and incorporating ethical instruction into technical communication programs and course work (Parsons; Golen, Powers, and Titremeyer; Rentz and Debs).

In the 1990s, however, the focus on ethical literacy shifted somewhat. New methods for incorporating ethical instruction into classroom practice developed that offered students more integrated opportunities to learn about ethics. Among the more integrated approaches offered were the incorporation of ethics into discussions of language and stylistic choices (Ornatowski; Sims), the writing process (Martin and Sanders), social theory (Affeldt), rhetorical choices (Bryan; Scott), and technology (Steven Katz; Schroll; Porter). Visual literacy issues, specifically in graphic and illustration choices (Allen) and document design (Dragga), were also identified as sites for ethical instruction.

Considering these many methods for incorporating and frameworks for discussing ethics in technical communication courses, Scott Sanders describes ethics as a centrifugal, not central, force—a force that moves things toward a center. In other words, ethical considerations touch many areas in our curricula and influence how we act and make decisions about our documents' purposes, audience, contents (both textual and visual), development, and delivery methods. Yet, despite this centrifugal influence, very little workplace research in ethical decision-making has been completed. One study on ethics and document design (Dragga), however, indicates that technical communicators typically rely more strongly on personal morals and values when making ethical decisions than on professional codes of conduct or on other ethical frameworks learned in educational settings. This failure to use professional codes, such as the codes of the STC or the Association of Teachers of Technical Writing, as bases for preliminary ethical decision making seems to point to an educational need for more focused ethical literacy instruction in technical communication curricula or, perhaps, to the weakness of the codes themselves. In
either case, the need for more focused attention to ethical literacy has been clearly articulated by Wahlstrom, who argues that ethical literacy is a key but often neglected component in technical communication courses. Increasing our focus on ethical literacy and layering it, as Wahlstrom suggests, with other curricular goals would not only enhance technical communicators' abilities to make decisions that are grounded in the profession's ethical principles—legality, honesty, confidentiality, quality, fairness, and professionalism (STC Ethical Principles for Technical Communicators)—but also enhance their decision making by making them more cognizant of ethical implications of their decisions, including their responsibilities as citizens and workers in their society.

Requiring students to identify and explain ethical choices they make in their classroom projects will strengthen their awareness and may begin to build students' awareness of ethical decision-making strategies. Classroom analysis of ethical cases may facilitate these discussions, and particular assignments, such as Internet-based projects in which students incorporate materials other than their own, can provide ample opportunities for instructors to introduce ethical concepts as well as assess how well students understand ethical guidelines and situations in which they apply.

Critical Literacy

As an isolated literacy, critical literacy is perhaps the most difficult to define because its practice is so enmeshed in situations requiring other forms of literacy. Nevertheless, critical literacy can be defined as the ability to recognize and consider ideological stances and power structures and the willingness to take action to assist those in need. The goal of a pedagogy that values critical literacy, according to Charlotte Thralls and Nancy Blyler, is "emancipatory, involving transformation of the critical consciousness" (256). In other words, critical literacy requires technical communicators to act within and upon situations where individuals are inarticulate or mute. Through their actions, technical communicators thus give voice or assist in freeing the voice of those who have been silenced. To achieve this goal, "problem posing rather than problem solving with special sensitivity to power differences due to gender, class, and status" is the primary skill instructors ask students to develop (Thompson 62). Technical communication students and practitioners must also be able to contextualize their writing, the situation in which they are writing, and the concerns of all stakeholders, not just the powerful, who have an interest in their product. An awareness of critical theory can assist in this contextualizing process and in the consideration of "the relationship of the individual to the society in terms of situated webs of relations, including historical factors, the system of labor and production involved, and the class implications of these relations" (Porter 62).
Like the other five literacies, critical literacy can easily be layered, especially with technological and social literacy instruction. In fact, the critical assessment of technology could be considered another key component of technological literacy. Such critical assessment is directly tied to technical communicators' awareness of the effects of technologies within human contexts: for example, what values technologies promote, how these technologies assist or hinder human interactions, how technologies' value-laden development and application affect users, and how they inherently control or limit what users can do with them. Such questioning and critical analyses can be used to problematize human interactions with a variety of electronic technologies, including e-mail (Selfe, "Theorizing"), computer networks (Haas; Hansen), and hypertext (Selber; Johnson-Eilola and Selber; Johnson-Eilola). These studies suggest that technologies are not neutral but value-laden products of human interaction. Technical communicators, therefore, cannot blindly accept their use or their applications by users. Instead technical communicators must assess technology and its uses from many stances or stakeholders' positions. This assessment and critique is key to the achievement of technological literacy.

Technical communicators should also reflect upon their own roles as facilitators and act ethically upon this reflection. These critical skills are not easily achieved—to achieve them, technical communicators must often work against popular theories of instrumental and deterministic technologies (Street; Haas), and they must employ social, ethical, and rhetorical strategy skills in order to assist them. In Nonacademic Writing: Social Theory and Technology, Ann Hill Duin and Craig Hansen eloquently describe the skills with which students must be equipped to achieve this goal: "Just as teacher-researchers emphasize change from the inside out . . . , so nonacademic writing instructors must equip writers with anthropological, social science, and linguistic skills (e.g., participant observation, journal keeping, interviews, analysis of electronic messages) that will enable them to analyze their sociotechnological writing environments as well as participate in them" (13). Equipped with these skills, technical communicators will be better able to recognize and overcome sociotechnological barriers they face themselves as well as those barriers created by the technologies with which they work.

Critical literacy thus promotes reflection, critique, and action. Classroom discussions or memos attached to final products can frequently be directed to promote these student activities. For example, discussions or post-production memos allow students to situate or reflect upon their writing within its social, political, technological, and ethical landscapes. They provide them with a means of critiquing these landscapes to determine what power structures were present and whose interests were served within the document. With this information, instructors will be better able to assess how well their students possess and apply critical literacy in communication situations.
Layered Literacies within the Curriculum: An Example of Change

The discussion of the six literacies in the previous section differentiates them in order to define them, yet few, if any, of them will be taught in isolation. In fact, they will most likely be layered within our assignments and throughout our courses and programs. This section offers a more comprehensive application of the literacies, demonstrating how instructors at one university used the layered literacies pedagogical frame to assess individual assignments within a course. This discussion also illustrates how the articulation of the six literacies within this specific course resulted in course content change and suggests how instructors and program directors can employ this frame to assess their program offerings to ensure that students within their programs graduate with these literacies in hand.

The examples in this section are drawn from the technical writing capstone course, English 5430, taught each semester at Utah State University (USU). All undergraduate technical writing majors are required to take the course and typically do so within one semester of graduation. The course meets once weekly for three hours. Since its inception, the primary goal of the course has been to prepare students to enter the job market and to provide them with an opportunity to create a professional portfolio, developed from projects completed during their undergraduate courses, to assist them in their job searches.

Prior to the spring semester of 2001, the course description articulated the course's objective in this way: English 5430 is a "capstone course for students in the Professional Writing Option in which students develop a professional portfolio of their own writing." During the fall semester of 2000, however, the technical writing faculty at USU reexamined its curriculum in an effort to identify more clearly the goals of the undergraduate program of study. At this time, two instructors in the department, Mark Zachry and I, began to discuss how the capstone course description and content might be revised to prepare our students more fully for the transition from their undergraduate studies to the workplace. Part of this discussion included an examination of the course curriculum using the layered literacies pedagogical frame.

To begin this examination, I listed the primary assignments and activities of the course, as it had been designed and taught originally. These assignments typically include students' development of job search materials (cover letters and paper-based résumés) as well as professional and academic portfolios. The professional portfolio is designed for marketing students' work to employers while the academic portfolio is designed for the technical and professional writing faculty to demonstrate student competencies. Through analysis of the capstone students' academic portfolios, the technical and professional
writing faculty performs annual program assessment to determine what skills and competencies graduating students have gained through their program of study.

For some students, the portfolios are identical, but for others, the academic portfolio contains a wide variety of course assignments while the professional portfolio is designed to focus on a particular skill a student wishes to market to an employer. For example, students who would like to work as editors might include a wide range of editing examples in their professional portfolios while students who want to work with electronic documentation would create a portfolio highlighting and demonstrating the skills necessary to obtain that kind of position. Selecting the appropriate documents for the portfolios and preparing the portfolios themselves comprised the majority of class time in the earliest iterations of the course. A few weeks were also spent working on cover letters and résumés, and the paper-based résumés were included in both portfolios.

Considering these course emphases, I was able to classify the course objectives as primarily basic and rhetorical. The cover letters, résumés, and portfolios were designed for specific audiences, purposes, and writing situations, and students' abilities to demonstrate their rhetorical literacy were clearly demonstrated in these final products. Similarly, students demonstrated their basic literacies by producing résumés and cover letters using generic forms and conventional document designs and by correcting mistakes (grammatical and stylistic errors, for example) in their revisions and class projects included in their portfolios. The portfolios themselves often demonstrated students' competence in other literacies (for example, inclusion of group projects might demonstrate social literacy through collaboration and electronic documents within the portfolio might illustrate technological literacy), but the course itself did not emphasize these competencies in its own objectives. In order to incorporate more instruction in the other literacies, new assignments were added to the course content.

Among these new assignments was an interviewing unit Mark Zachry developed in fall 2000. This unit sequenced a number of activities together and layered five literacies into its instruction and assessment strategies. When I used the assignment in the spring 2001 semester, I added a technological component, which layered all six literacies into the instructional unit. The interview unit, as I taught it in spring 2001, took place over one full class period (three hours) and one additional hour of the next class meeting. (Timing for this unit may be extended if students actually participate in an interview.) The unit includes these five activities:

1. Capstone students read several articles about interviewing strategies published in the STC's *Intercom*, and write responses about what they have read.
2. They view and discuss segments of three interviewing videos, borrowed from our university’s Career Services Department.
3. They complete a mock interview assignment (see Table 1).
4. They create potential interview questions that they anticipate an interviewer might ask them.
5. They participate in a mock interview. (When scheduling allows, I invite members of STC to conduct these interviews, so students will have the experience of actually interviewing with professionals.)

Each of these activities requires students to develop and employ a variety of literacies. The reading assignment requires them to read and summarize what they have read about interviewing (basic literacy) and introduces them to strategies they might use when interviewing (rhetorical literacy). The video activity requires them to listen, view the videos carefully, and reflect upon the advice given in the videos (basic and critical literacies). It also introduces them to ethical, rhetorical, and social situations they may encounter during the interview process. For example, in my class, we discuss questions that interviewers can and cannot legally ask job applicants as well as answers they might give should the questions arise. Considering the answers they might give requires students to think not only about what their interviewers might really be asking them but also about how they might answer their interviewers’ questions (ethical and rhetorical literacies). They also consider how to state courteously their preference, if necessary, not to reply to a question (social literacy). Completing the mock interview questionnaire requires students to think about their own experiences and stances (critical literacy) as well as write about themselves in terms of an interviewing audience (basic and rhetorical literacies). Creating interview questions further strengthens students’ abilities to see themselves in terms of others and provides them with an opportunity to demonstrate their basic, rhetorical, critical, and social literacies. By posting the potential interview questions on our course’s Web-based electronic discussion forum, students also demonstrate one type of technological literacy. Finally, participating in an interview gives students the opportunity to display their social, rhetorical, and basic literacies. Through these activities, which take place over two or more class periods, depending on the interviewing schedule, students not only discuss all six literacies in some form, but they also practice them.

In addition to the interview unit, I included another component in the capstone course I taught in spring 2001. This new component required students to read about the enculturation of novice writers into workplace settings. To provide this instruction, I used two textbooks—Susan Katz’s *The Dynamics of Writing Review* and Gerald Savage and Dale Sullivan’s *Writing a Professional Life: Stories of Technical Communicators On and Off the Job*. I divided each text into short
**Table 1**

Mock Interview Assignment Description

**English 5430: Mock Interview Assignment**

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**Introduction**

Contemporary professional communicators can reasonably expect to interview for positions many times during their careers. Recent employment studies indicate that most professionals in the 21st century will change jobs more than a half dozen times from the beginning of their careers until they retire. In addition, promotion within an organization often involves interviewing for the new job. Finally, professional communicators who work as free-lance contractors are often required to go through a special kind of interview process.

This assignment is designed to give you practice being interviewed about your professional communication skills. It will also allow you to reflect critically about that experience, so that you can improve your performance in future interview situations.

**Assignment**

To complete this Writer Profile Assignment, you will create three documents:

- **A list of ten major accomplishments.** Identify ten accomplishments in your lifetime, each of which you are particularly satisfied with. The list may include accomplishments that were formally noticed by other people, or some that went completely unnoticed. For each of the accomplishments, address the following questions: (1) What knowledge or skills did you use? (2) What personal traits did you exhibit? (3) What makes this accomplishment satisfying to you?

- **Inventory lists of your professional skills and interests.** In two carefully designed lists, identify the professional skills you possess and the professional interests that motivate you. These lists may include fairly obvious items (e.g., designing Excel databases, managing a project team), and less obvious items (e.g., organizing weekend parties, volunteering at non-profit organizations).

- **A one-page introduction of yourself to the world of professional writers.** Compose a three to four paragraph statement that you would be satisfied to use as an introduction of yourself on a professional website or at a public meeting. Your statement should reflect your actual situation in life (do not imagine yourself as the Head Publications Guru at Nike). Accordingly, in addition to your accomplishments, your statement should include information about your ideal job, career goals, and where you envision yourself in five years. Be sure to not only cover your basic skills and accomplishments, but also to give the
Table 1 (cont’d)

Mock Interview Assignment Description
English 5430: Mock Interview Assignment

audience a sense of who you are as a person. Remember that part of who you are as a professional is reflected in your style of communication.

Each document should be developed and designed to exhibit the very best of your skills as a trained professional writer. Of course, this means that each document will be single-spaced. Also, keep in mind that we will be sharing these documents in class, so you should make appropriate content decisions.

reading assignments, spending three weeks on each book. In addition to reading each assignment, students post reading responses on our Web-based electronic discussion forum and participate in classroom discussions. Because one of our class members was attending the class from a distance, we held our classroom discussions in an electronic chat room. The readings provided students with insights into writing reviews they might encounter in the workplace as well as introduced them to the variety of settings in which technical communicators work. The case studies in both texts also gave students a glimpse of what it is like to work as a professional writer. Through the readings and discussions, students develop and demonstrate the following literacies:

1. basic (by reading and responding to the assignments);
2. rhetorical (by considering how workplace writers worked for different audiences and purposes);
3. social (by discussing their responses with others in the class but also by considering how workplaces require writers to collaborate and negotiate in order to solve problems);
4. technological (by reading about the technological skills and abilities of technical communicators in the workplace and by using electronic discussion forums and chat rooms);
5. ethical (by considering the situations within which workplace writers sometimes find themselves working); and
6. critical (by reflecting on workplace writing situations and their own futures in the workplace).

Incorporating these units (the mock interview and the two reading/discussion units) strengthened the number of literacies we assessed in student work and participation and, consequently, required us to rearticulate the course objectives. The new course description and objectives reflect this change: "This capstone course focuses on preparing students to begin their careers as professional writers. To
prepare them to succeed in this field, class discussions emphasize the job search process, including creating cover letters and résumés, interviewing, and developing portfolios. In addition, students will consider how the organizations they join may influence the way they work and write as well as how they may, in return, come to influence these organizations.” The original focus of the course has not changed entirely, but it has been extended to incorporate the additional literacies that we have integrated into the course in recent iterations.

Our application of the layered literacies pedagogical frame to this course thus reaped changes in the course’s assignments, overall description, and objectives. To assure that our programmatic offerings also provided students with a broad introduction to these literacies as well as opportunities to demonstrate them, we also considered the literacies taught and assessed in our program’s entire curriculum. We discovered that some courses, such as a course entitled Modern Rhetorical Theory, appropriately emphasized certain literacies (rhetorical literacy, in this case) more than others, but we also found that some courses were too narrow in their scope, such as the capstone course, and we consequently made adjustments to them. When our curricular analysis and revision process was completed, we felt that our program’s course of study provided students with multiple opportunities to acquire and practice the six literacies. We are hoping that the academic portfolios that we assess in upcoming semesters will illustrate both the breadth and depth of these literacies within our students’ work.

Conclusions and Implications

This layered literacies pedagogical frame identifies six literacies that span the breadth of current technical communication pedagogy. To be applied most effectively in assignments, courses, and programs, they will most likely not be considered solely as independent instructional objectives. Rather, they should be viewed as extremely fluid, complicating technical communication instructional activities and goals rather than simplifying them. At times, it may even be difficult to describe one without mentioning how it might be layered with another either in classroom or workplace practice. To some, this fluidity may be troublesome because distinctions between categories often will be blurred. Yet, the fluidity of these categories is one of the frame’s strengths because it allows instructors to create activities that promote multiple literacies and develop many skills simultaneously.

Some instructors may also be troubled by the lack of a specific category devoted to visual literacy, and, in fact, the frame purposefully does not have a distinct category for it because visual literacy and the images associated with it are as fundamental to good technical communication as appropriate use of words in writing and reading. For
this reason, the frame incorporates what some might call visual literacy into each of its six categories in an attempt to show that using visuals appropriately and effectively requires individuals to think about them in terms of their basic, critical, ethical, rhetorical, social, and technological components.

In addition, some critics may suggest that this layered literacy approach lacks a clear emphasis on workplace skills since no "functional" or "workplace" category appears here. However, if students possess a working literacy in these six areas, they will possess and employ a variety of skills that will make them successful employees. Instruction in these six literacies infuses students with skills necessary for communicating in many fields. By focusing on these literacies rather than specific workplace skills, technical communication instructors may better prepare students for many workplaces and prepare them for lifelong learning, not learning for a specific vocation.

Finally, some instructors may fear that this frame optimistically suggests that a single course or even an undergraduate course of study will produce students with complete command of all six literacies. No one, however, should expect a single course (or even a single curriculum) to conclude with all students knowing everything about a subject or using all of its knowledge strategically. These six literacies may not, in fact, be achievable without consistent and repeated exposure to them all. For this reason, considering a program of study in terms of the six literacies may be just as important as considering their existence in individual activities or courses.

The interrelationship of literacies, however, does suggest that individual courses, such as a service course, might well introduce all literacies to students. Other courses, as we found at USU, might emphasize just a few. Indeed, individual programs, courses, and instructors may more strongly emphasize some literacies over others. Whatever the emphasis—a strong emphasis on one or two layered literacies or broader introduction to many of them—program directors and individual instructors can use this frame to conceptualize technical communication pedagogy as layers of learning that move and flow over one another depending on the topic of the moment, hour, unit, or course. And, most importantly, they can use the frame both to promote and to assess the increasingly complex range of knowledge and skills students require to become successful technical and professional communicators in the twenty-first century.

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Kelli Cargile Cook is an assistant professor of Professional and Technical Writing at Utah State University, Logan, UT. Her research interests include technical communication pedagogy, online technical communication, and writing assessment.