

7

STORY TIME

Teaching Technical Communication as a Narrative Way of Knowing

Tracy Bridgeford

Telling stories is the basis of how I teach—not just technical communication but any subject—composition, editing, literature, and publications management. I don't tell these stories simply to entertain students or to keep them interested—although certainly stories can perform that function. I tell stories because stories are a part of the practices of everyday life; they make it possible to articulate these practices. We know each other, our communities, and the world through the stories we tell each other about what we know, how we know what we know, and why we know what we know. Specifically in my technical communication classes, I ask students to read a particular story as a context for assignments and discussions. This approach helps students to contextualize the constructs and implementation of knowledge demonstrated in technical documentation—audience analysis, invention, information design, and documentation. In this chapter, I describe this approach, providing some example assignments and student writing in order to demonstrate how stories help me realize my pedagogical goals.

This approach is heavily influenced by Michel de Certeau's (1984) concept of stories as the articulation of everyday practice and Jerome Bruner's (1981 and 1990) discussions about *hermeneutic composibility*—how stories are made. These two perspectives provide the foundation for the construction of technical documents from a narrative perspective.

First, telling stories, or what Michel de Certeau calls the “narrativizing of practices,” is a “textual way of operating” or “way of thinking” that involves a meshing of what one knows (theory), how one knows what one knows (practice), and how one applies that knowledge to situations (*metis*). The telling of stories is characteristically concerned with the

“style of tactics” (79), or a way of operating that traverses schemas into opportunities for action. Because tactics are opportunistic, they belong, de Certeau says, to the classical concept of *metis*: a “form of intelligence that is always ‘immersed in practice,’ which combines ‘flair, sagacity, foresight, intellectual flexibility, deception, resourcefulness, vigilant watchfulness, a sense of opportunities, diverse sorts of cleverness, and a great deal of acquired experience’” (81). To be effective, stories must demonstrate this level of cleverness in their realization.

Stories are realized in the act of telling. Because a story “makes a hit (a *coup*) far more than it describes one,” “its discourse is characterized more by a way of exercising itself than by the thing it indicates” (79). In this way, narrativizing is an “art of saying,” or a “know-how-to-say,” “characterized more by a way of exercising itself than by the thing it indicates” (de Certeau 1984, 78, 79): it is an “art of speaking . . . which exercises precisely that art of operating” and “art of thinking” (77). Stories provide, de Certeau says, the “decorative container of a *narrativity* for everyday practices,” which “provide a panoply of schemas for action” (70). In other words, stories both describe and hypothesize everyday practices.

Second, stories connect us to each other as human beings. Telling stories is a process of knowledge construction that all humans share and in which all humans have some measure of competency because “we store, categorize, and process knowledge mainly in the form of narrative” (Bruner 1991, 4). In other words, we process and categorize knowledge in narrative form. Given this premise, consider the hammer. It is impossible to understand “hammer” without imagining it within a context of some kind. For me, the hammer is a symbol of my dad’s identity—a master craftsman. I understand a hammer in this context: as part of the many tools that defined my dad’s craft; as part of my dad’s tool belt; as an extension of his hand as he built one of the many hutches or homes for which he was most known; as part of the many lessons about construction (“Hickory is the best wood for constructing hammers”); and as part of how we buried him—with his hands wrapped around the same hammer he used to begin his career. Although each of these parts could lead to a number of stories that explain better what a hammer is, the story most effectively describing its particular characteristics occurred during my dad’s wake. After paying his respects, one of my dad’s colleagues greeted us and said, “It’s a shame to bury him with that hammer.

It was just getting broken in” (the hammer was then forty years old). This statement makes sense only when one considers its context: it made sense to us because to me a hammer is not simply a tool; it is a narrative construction of who my dad was.

In “The Narrative Construction of Reality,” Bruner (1990, 1991) says that stories are “a form not only of representing but of constituting reality” (1991, 5) that work by constructing a dual landscape involving both consciousness (a way of thinking) and action (a way of operating), constructions that “occur concurrently” (1990, 51). Similarly, in *Acts of Meaning*, Bruner (1990) indicates that the human “capacity to render experience in terms of narrative is not just child’s place, but an instrument for making meaning that dominates much of our life in culture” (97). He describes how the mental powers of narrative make it possible to frame experience in ways that enable us to both remember and make sense of human happenings”; in fact, he argues that “what does not get structured narratively suffers loss in memory.” Narrative frames, Bruner says, provide a “means of constructing the world, of characterizing its flow, [and] of segmenting events within that world,” without which we’d be “lost in a murk of chaotic experiences” (56). Human beings, he says, do not “deal with the world event by event or with text sentence by sentence,” they frame events and sentences in larger structures” (64). However, simply reciting what happened does not constitute a narrative construction of reality because the “act of constructing a narrative . . . is considerably more than ‘selecting’ events either from real life, from memory, or from fantasy and then placing them in an appropriate order. The events themselves need to be constituted in light of the overall narrative” (1981, 8). This “part-whole textual interdependence” is a defining property of hermeneutics, because the “telling of a story and its comprehension *as* a story depend on the human capacity to process knowledge in this interpretive way” (8). This property is what makes narrative constructions of reality “different from logical procedures”—“they must be interpreted” (1991, 60).

Stories have more to do with context than with text, with the conditions of telling than with what is told. In other words, the events must be interpreted in order to tell the story. Hermeneutics is the study of interpretation, that is, how interpretation happens. Narratives have to do with people acting in situations. Making sense of a story (either in the

telling of or listening to a story) requires making connections between characters' intentional states (beliefs, desires, theories, values, and such) and "the happenings that befall them." To make this connection is to state "reasons," not "causes," for behavior, a process Bruner calls *hermeneutic composability*. The term *hermeneutic*, Bruner says, implies an attempt to "express" or "extract" a meaning, which further implies that "there is a difference between what is *expressed* in the text and what the text might *mean*." This hermeneutic process is required "when there is neither a *rational* method . . . nor an empirical method" for "determining the verifiability of the constituent elements that make up the text" (Bruner 1981, 7). Because interpretation is dependent upon an individual's ability "to achieve mastery of social reality," the "best hope of hermeneutic analysis," Bruner says, "is to provide an intuitively convincing account of the meaning of the text as a whole in light of the constituent parts that make it up," a process "nowhere better illustrated than in narrative" (8).

Narratives are not self-evident. They "do not provide causal explanations" for a character's actions; what they do supply is a "basis for interpretation," that is, a basis for "assigning meaning" to a text (Bruner 1981, 7). Events are meaningless without interpretation because the veracity of a narrative depends on the ability of the storyteller to situate a story within a context and to interpret the meaning of those events *based on* a particular context and to convince a listener to accept that version of reality. Because of this interlocutory interaction, Bruner says, interpretation is "studded with" two problems that have to do more "with context than text, with the conditions on telling rather than with what is told": intention (purpose) and background knowledge (ability to judge veracity). Intention refers to the reasons a story is told, how and when it is told, and how it is interpreted "by interlocutors caught in different intentional stances themselves." Narratives (or their interpretations) are not created unintentionally: text, context, and situation converge to influence meaning for both the storyteller and the listener. Equally important is the background knowledge on which both the storyteller and the listener rely to judge the verisimilitude of a narrative account: typically, we presuppose that what an interlocutor says in replying to us is topic relevant and that we most often assign an interpretation to it accordingly in order to make it so" (10). Both these contextual issues hold "important grounds for negotiating how a story shall be

taken . . . or how it should be told” (11), and both depend on the abilities of the storyteller and the listener to “fill in” information as necessary for comprehension (10). The capacity to complete information is the “human push to organize experience narratively” (Bruner 1990, 79).

A story is successful if it can convince listeners to accept its version of reality as “narrative truth”—if it can “sensitize us to experience our own lives in ways to match” (Bruner 1981, 13)—a truth “judged by its verisimilitude rather than its verifiability” (13). In this way, narratives are “centrally concerned with cultural legitimacy” (15); that is, they grow out of and reenforce cultural norms and encapsulate background scripts, implicitly inscribing the norms and behaviors of a culture. Because narrative is “centrally concerned with cultural legitimacy,” stories not situated within a culture’s norms seem “‘pointless’ rather than storylike” (11). But these scripts provide only the background necessary for comprehending the facts of the story; they do not constitute the “story” or its tellability. The “tellability” of a story depends on “what happened and why [a story] is worth telling” (12). To be worth telling, Bruner argues, a “tale must be about how an implicit canonical script has been breached, violated, or deviated from in a manner to do” harm to an implicit canonical script (11). In much the same way that de Certeau (1984) says an audience understands the *metis* component of storytelling, that is, the point of manipulation within the story that marks its unusualness, Bruner (1981) says that the moment a “hearer is made suspicious of the ‘facts’ of a story or the ulterior motives of a narrator”—an element of breach—she becomes “hermeneutically alert” (10). This state of mind comes from narrative necessity, which sets up the story in such a way that it “predisposes its hearers to one and only one interpretation” (9). These are the stories worth telling and worth listening to because they compel us into what Bruner calls “unrehearsed interpretative activity,” or using what is known to understand what is unknown.

But, what does all this have to do with technical communication? How does a narrative way of knowing work in technical communication classrooms? For one thing, technical documents appear to be neutral, decontextualized texts that should require no interpretative activity (some scholars argue that this “objectivity” is the objective of technical documents—to limit interpretation; see Moore 1996, for example). Many textbooks focus on this aspect of technical communication, which I think doesn’t address the content (how writers understand what they

are saying) at a level in which students feel connected with the text. Stories, I think, do just that—connect with students at a level that all humans share. I don't simply tell stories about myself in classes. I assign a specific piece of literature as a context for assignments, which provides a way for students to make connections between what they already know—in a form they already know it (narrative)—and what they are learning about technical documentation.

Throughout the rest of the chapter, I describe how to structure a pedagogy designed as a narrative way of knowing, the procedures I use for helping students read and understand literature from a technical communication perspective, some individual and collaborative assignments I've used, and the evaluation methods used to assess student performance. I conclude this chapter with a discussion about some lessons I've learned from using this pedagogy.

ESTABLISHING A NARRATIVE WAY OF KNOWING

Course Focus

As a pedagogical approach, a narrative way of knowing begins with a theme (or focus), around which all assignments and discussions revolve (such as agriculture communication or environmental communication). This theme provides the focus for discussing and creating technical documents and depends on a teacher's own interests and goals for the class. The introduction of this theme should start with a representative technical document for a particular kind of communicative activity. The document could be a policy statement (government, corporate, nonprofit, or community), an application (such as for loans, admission, or adoption), a letter (such as Bush's recent letter to China), a proposal (such as for a national park or a legislative bill), a report (such as Accreditation Board for Engineering and Technology [ABET] 2000), and so on; there are endless possibilities. I generally start with a technical document because from a surface inspection, it appears to be neutral, objective, and decontextualized. Since adopting this approach, I have used such documents as the Agriculture Adjustment Act of 1933 (AAA), a piece of legislation that guaranteed farmers restitution if they planted only a percentage of their acreage, or the Environmental Protection Act of 1970 (EPA), which established the Environmental Protection Agency.

Literature

After selecting a technical document, I choose a piece of literature—or what I’m calling a narrative way of knowing—that provides a common context for thinking about the technical document. Providing a context for that document involves judiciously choosing a piece of literature that contextualizes the communicative activity implicitly embedded within the seemingly neutral technical document. The literature chosen should provide various perspectives (how characters think and interpret), situations (of collaboration), and actions (decisions made about communicative problems). This choice of literature could be one or more short stories, a novel, a film, a poem, or song lyrics—but whatever its genre, it must provide a comprehensive, complete story about a particular situation.

With the Agriculture Adjustment Act, for example, I used various short stories depicting farm life, values, and beliefs and a short excerpt from Lois Philips Hudson’s (1984) *The Bones of Plenty*, which provides a lively scene in which North Dakota farmers attend a town hall meeting to discuss the merits of the Act with a government representative. With the Environmental Protection Act, I used Scott Russell Sanders’s *Terrarium* (1985), a futurist novel depicting an overpolluted earth that forces people to move into Enclosures (globe-like structures that offer protection from the elements of climate) in order to sustain human life. Together, the technical document and the literature provide the context in which assignments and discussions revolve.

I use literature because its self-enclosed construction provides what Barbara Mirel (1998) calls “entry and exit points” that help students situate themselves within a context as a basis for interpretation, as a basis for “figur[ing] it out” (or as a student once described it—“it makes us use our minds”). The literature frames discussions about technical documentation in ways that situate students into what Bruner (1981) calls “unrehearsed interpretative activities” (9). Teaching technical communication as a series of parts without constituting them within the whole shortchanges students and encourages them to leave your classroom knowing only a particular skill—such as how to format a memo (placement of heading, formatting of body text, and so forth), which teaches them *what* to think, not *how* to think about communicative problems.¹

Using literature as a context encourages students to consider thoughtfully the perspectives of characters in terms of the communicative action in the story as well as their and others’ perspectives in the class.

In class, these perspectives are shared through in-class activities requiring students to discuss their interpretations in order to complete the assignment and through display of student writing on an overhead. For example, during an in-class writing activity, I asked students to work in groups of three or four to write parenthetical, formal, and expanded definitions for such terms as farm, agriculture, tractor, combine, homestead, and barn from the perspective of a character in Wil Weaver's (1989) "A Gravestone Made of Wheat" (such as the farmer, the farmer's wife, the sheriff, the farmer's son or daughter, the county clerk, the FHA agent, or the judge). My intention with this activity was to encourage students to pay attention to the implicit canonical scripts—embedded within the story and within students' personal narrative constructs—suggested by terms like "farm" and "farmer." By asking students to write technical definitions from a particular character's point of view, I had hoped they would expand their awareness of different contexts that affect the construction of knowledge and audience. In his end-of-the-quarter reflection memo, one student demonstrated this expanded awareness.

I think that reading and discussing the required literature had an effect on the technical writing I did in this course. . . . I think that the biggest thing the reading did for me was to enlighten me on writing for different audiences. . . . As a specific example of this, I remember on one of our workshop days when we had to write technical definitions of certain farm-related terms for a character in "A Gravestone Made of Wheat." My group chose to write the definitions with the judge as the audience. I did not realize how much different it would be to write the definitions for the different characters. From doing the reading, I learned that the judge was well educated, knew little about farming, and seemed to have some biases towards farmers. These facts dramatically changed the way we defined the terms. We decided that we could use fairly technical terms to make the definitions because he must have been fairly well educated to be a judge, but we need to go into great detail in defining the terms because he did not have any experience in farming. The hardest part about defining the terms for the judge was trying to deal with the biases he had about farmers and farming. We ended up portraying farming in a somewhat negative way to make him better understand what we were saying because of his biases.

Anthony (pseudonym)

To realize that language use changes with the audience and the situation, Anthony had to interpret the circumstances of the story to come to an understanding of the judge's attitude toward farmers; he had to, essentially, figure out what is implicitly provided about the judge. Anthony's expressive "I did not realize how much different it would be" statement indicates his engagement in "unrehearsed interpretative activity" in ways that challenged his conceptions about the objectiveness of technical documents. He clearly sees the judge, the term, and technical communication differently.

Although pedagogical design of a narrative way of knowing should begin with the selection of a technical document, decisions about the document and the literature more often occur concurrently. For example, *The Bones of Plenty* excerpt focuses specifically on the concept of agriculture adjustment, which led me to the AAA of 1933, and *Terrarium* mentions a fictitious "Enclosure Act," which led me to the EPA of 1970—both of which led me to the technical documents. Other possibilities include adoption policies of Native American children with Barbara Kingsolver's *The Bean Trees*, immigration policies with Helena Vermontes's *Under the Feet of Jesus*, a Search for Extraterrestrial Intelligence (SETI) report with Maria Doria Russell's *The Sparrow*, the Communications Act with *The Net*, or a NASA report with parts or all of the HBO miniseries *From the Earth to the Moon*.

For the purposes of this chapter, I focus my discussion on my use of the Environmental Protection Act of 1970 and Scott Russell Sanders's *Terrarium*.

Procedures

For literature to work as a context successfully, students need to understand its purpose in conjunction with technical communication. To help students situate the literature, in this case *Terrarium*, within the language of technical communication, I associate the communicative practices with those in the workplace by creating procedures for reading the literature (see appendix A). I use the term *procedures* for three reasons: (a) because it provides a lens through which students can view the context from the perspective of technical communication practices, (b) because it emulates the language and sensibilities of engineers and technical communicators, and (c) because the students at Michigan Technological University, where I was teaching at the time, tend to be extremely

systematic and respond well to assignments that provide an identifiable foundation. The creation of these procedures grew out of my concern that because the assignment included a piece of literature, students might be tempted to adopt a literary studies perspective and read it in terms of its value as a literary artifact. I developed these procedures to help students focus their attention on the context the literature provides and how narrative ways of knowing transmit implicit knowledge.

Explanation of these procedures occurs on the day the schedule requires students to finish reading *Terrarium*. Column 1 (appendix A) names the procedure according to the cognitive function involved, column 2 provides heuristic questions that help students figure out the procedure described, and column 3 equates the activity with workplace activities. Although this discussion does focus primarily on *Terrarium*, when first explaining the procedures, I usually add to the discussion with examples from my work experience (such as when the small midwestern college I worked for in the early 1990s considered dissolving my public relations position, arguing that one marketing representation was enough for all six colleges in the region; in defense of my position, I was asked to write a brief statement about the value of this public relations position). After explaining the procedures, I ask student to work in groups of three or four, writing a one-to-two sentence statement for each procedure, using *Terrarium* as a context. I then ask each group to write one of their answers on the board and discuss it with the entire class.

The first procedure, Comprehending the Story, asks students to consider the meaning of the story as a whole. The biggest hurdle to overcome here is students' tendency to focus on the plot, such as "*Terrarium* is a story about how a group of people escape from the Enclosure" or "*Terrarium* is about good versus evil." The second procedure, Determining the Rhetorical Situation, asks students to consider the circumstances and the context of the story and how they affect the meaning of the story as a whole. Students also tend to describe the plot here, but this activity should focus on why the situation is important. Identifying the Exigency of the Situation, the third procedure, is the most confusing for students, mainly because of the term *exigency*. This procedure helps students identify the action or burden called for by the situation.² The fourth procedure, Identifying the Stakeholders, asks students to identify the people involved in the situation and the significance of their participation. This procedure emphasizes the importance

of audience analysis in the creation of technical documents. The last procedure, Reflecting and Connecting the Story to Technical Communication, is intended to help students equate their interpretative activities with the activities associated with creating technical documents such as audience analysis, gathering and organizing information, and determining ethical dilemmas. This last step has proven to be the most difficult for students, I suspect, because this discussion occurs early in the term and because they try to see *Terrarium* as a technical document.

Assignments

To be successful, assignments based on the literature must address some kind of exigency—some reason or purpose—for providing the information that suits the context of the story. In other words, students should respond to a particular communicative problem not just answer a question with a particular form. Assignments require writing scenarios in which students more or less interact with characters. This interaction gives them a sense of audience in ways that simply naming “your boss” or “a client” cannot. It also allows them to imagine themselves acting in the situation. Assignments should not identify for the students the appropriate communication required (report, memo, or letter of application, for example), although there are some exceptions; rather, assignments should require students to interpret the situation and determine the appropriate action—to make rhetorical decisions. Appendix B lists some representative assignments I have given in conjunction with *The Bones of Plenty* and *Terrarium*.

What’s important to keep in mind when creating assignments are the connections the students make between this imaginary “playacting” and the kind of communicative interactions in which students will be expected to participate in the world of work. These assignments must involve appropriate and recognizable workplace situations, actions, and contexts with which students connect the rhetorical action—or exigency—between what they know or have been told about the workplace, whether that knowledge is from personal experience, from professors in major classes, or from professionals in the fields, and the kind of thinking and writing involved in the assignments.

I generally focus the first part of the term on individual and in-class collaborative assignments, which are intended to help students practice writing in the genres of technical communication and understanding

those “genres as social action” (Miller 1984) and as constructions of knowledge (Berkenkotter and Huckin 1995). During the last half of the term, students work in collaborative groups of four or five on a major project in which they emulate the contextual approach I demonstrated during the first half. The purpose of the major project is, obviously, to evaluate students’ abilities to generate content for a specific audience, to organize and shape that content, and to present this information in a readable fashion—to assess their communicative competency.

Individual Assignments

Assignments like those listed in appendix B are individual assignments that take place during the first half of the term. They all rely on the story as a context and require that students interpret a character’s intentions, motivations, and actions. Assignments involve two kinds of communicative activities—individual and collaborative—both of which provide students with opportunities to practice articulating what they know, how they know what they know, and why they know what they know.

Pragmatically, these assignments involve creating documents such as letters of application and memos, fact sheets, short reports, technical descriptions, and processes and procedures. On a more conceptual level, to create these documents, students must interpret the circumstances embedded in the story in order to generate the content for the documents, contextualizing and organizing that content within the constraints of the assignment and the audience. These interpretative activities include topics such as identifying and characterizing problems, situations, and actions; analyzing and assessing problem-solving strategies and reflecting on those problems; and describing and evaluating collaborative processes, procedures, and instructions. Assignments based on *Terrarium*, then, are constructed in such a way that students are required to make genre decisions, to generate content, and to format and organize information—to conduct themselves as a member of that community—based on their assessment of the situation, the audience, and the exigency of the assignments. Although the technical forms assigned are fairly standardized (for example, memos, letters, reports, and proposals), the content for those forms must come from students’ interpretations of the circumstances of the story. In this way, students not only practice the interpretative task of assigning meaning to an event, but they also unmask the nature of practice within a community.

To complete any of these assignments, logistically, students must make genre decisions, invent content appropriate to the situation, and present this information in an appropriate form, style, and tone. These decisions require students to identify the rhetorical situation (such as a second interview or an expert review), the exigency (what's required to get a particular position or request for evaluation, for example), and select the appropriate form, content, and style, based on this situation (for instance, applying for a job requires a formal letter of application or pitching an idea requires a proposal). More conceptually, students must interpret the circumstances of the story, invent content from their interpretations, and organize that information in ways that make sense to the audience defined—all in terms of the purpose and exigency of the assignment. To do this kind of conceptual thinking, students must see themselves practicing imaginatively within the context of the story.

To be effective, individual assignments based on the literature need to be contextualized within some kind of exigency—some reason or purpose—for providing this kind of information. In other words, the assignments should provide a scenario in which students are responding to a communicative problem, not just answering a question. One assignment, for example, asked students to apply for a position with a character from *Terrarium*:

You have applied for an engineering position with The Enclosure Group by answering a blind ad in the *Enclosure Gazette*. So far, you've had one introductory meeting with several Enclosure representatives and feel confident that they liked you. You received a letter today from Dr. Zuni Franklin, the Supervising Engineer, at 3980 Enclosure #1, Portland City, CA 00001, indicating that you are one of five applicants competing for the job. She has asked you to respond to the scenario below in writing to determine if you will be called for a second interview. Using *Terrarium* as a context, write a letter to Dr. Franklin indicating your continued interest in the position and identifying, analyzing, and evaluating three problem-solving strategies from the list below. Also indicate which strategy you think works best and why.

Death of Sol

Phoenix's fear of Terra

Avoiding the health patrollers

Repairing the enclosure

Zuni's retirement

Teeg and her father
Teeg and her mother

In a related example, but not nearly as successful, I asked students to use *Terrarium* as a context and to create a fact sheet intended to convince people like Judith Passio (a known adversary of the Enclosure—the globe-like structure into which humanity was moved when the earth became so polluted that it could no longer sustain life) to accept the inevitability of enclosures. In the novel, Passio is a holdout, refusing to move into the enclosure throughout the story and, aside from twenty or so pages toward the end of the novel, Passio’s character is known only from diary-like vignettes between chapters. Passio is, as a lawyer might surmise, a hostile witness (or audience), firmly believing in her rejection of technology as the sum total of humanity’s problems—the enclosure representing the furthestmost extent of this problem. To write this fact sheet, students needed to interpret her character as hostile in order to use language that could actually convince her to move into the enclosure. Although most students wrote “effective” facts sheets from a technical communication perspective in terms of clarity, organization, and design of information, most of them did not consider the reality of Passio’s character in their use of language. Many of them used a “let’s-be-friends” voice, highlighting the benefits of enclosure life, many of which Passio had openly criticized.

Although most of the assignments typically succeed (that is, students write clear, effective documents based on the context of the story), when they do fail, it is not always the students who demonstrate bad judgment. With the application letter assignment described earlier, students generally accurately addressed a letter of application to Dr. Gregory Passio and competently identified, described, and analyzed three problem-solving strategies. However, they also referred to events that this character couldn’t possibly know because he was long since dead when they occurred. Because the students had seemingly understood the idea of literature in the technical communication classroom and had successfully integrated content from the story in previous assignments, I was confounded that in their character analysis, they had missed such an obvious point. I didn’t expect to have to discuss character analysis in this way. So, I asked students why they referred to things the character couldn’t possibly know. One student raised his hand and said, “Well, all the

scenarios you listed for the assignment happened after his death. We just assumed you brought him back to life for the assignment.” Evidently, I had.

Collaborative Assignments

The major project requires students to work collaboratively in groups of three or four, asking them to create a microcosm of their field of study through the lens of a technical document indigenous to the field. Some groups, however, involve more than one major. The technical document created should represent some larger concept indicative of that field (the ethics of artificial intelligence, for instance). Students must figure out a focus for their projects, whether the group consists of similar or dissimilar disciplines, in ways that bring the three fields together, such as a piece of technology (a transistor) or a concept (project management). And because a group’s complement does not always consist of students with the same majors, they must create a document that represents two or more fields. They then must choose a story that provides a context for the technical document they are creating, in much the same way that I use *Terrarium* as a context for the Environmental Protection Act.³ Within these constraints, each group completes a number of ancillary assignments intended to broaden their knowledge and understanding of the concept through research and development. These ancillary assignments include a proposal, a journal report, an audience-analysis report, a visual report, and individual and group activity logs.

The audience for the assignment consists of technical communication teachers who want to know more about the different disciplines on campus in order to better teach technical communication. This major project includes a variety of ancillary assignments that inform their thinking about the content of the document: a proposal, a journal report, an audience-analysis report, two progress reports, a cover memo, and a final presentation. These assignments accompany and support the technical document students create. Appendix C shows some representative projects students have completed during the past four years.

As part of this assignment, students are expected to include, either within the project itself or as part of the appendices, presentation materials and a summary and analysis of the story and how it works as a context for their document. Although I was concerned in the beginning that I’d have to provide too much input in the selections of stories, my input has been minimal. I was especially worried that students would have difficulty

successfully articulating the connection between the document and the story. Although some groups tended to engage in plot summary more than interpretation of the story in the context of their project's focus, most groups competently analyzed the story from the perspective of their project's focus. One group that called itself the AI Group, for example, effectively connected the chosen story (*Bladerunner*) to their topic—artificial intelligence—by drawing on their background knowledge in computer science.⁴

Artificial Intelligence, being a relatively new area of study (middle of 20th century), has largely extended its interest into a variety of different disciplines. It can be loosely defined as: the quest to understand thought patterns and recognition processes present in the mind of living organisms, and to somehow reconstruct these thought processes in such a way that a machine (computer) can mimic parts or all of the process attained in living thought. Such a philosophical definition leaves much unanswered, as is the case in Artificial Intelligence.

Considering what intelligence is, AI researches have found much resistance in modeling brain thought and learning. Often, even simple tasks which most all people can achieve without much “intelligence”, prove to be large obstacles in AI. For example, most people have the ability to clean the dinner table and do dishes after a meal. Such a task is a large problem for an Artificial Intelligent machine to complete without assistance.

Such implications lead us to believe a living brain uses more than intelligence for many everyday applications. Extending intelligence to include such things as feelings or environmental awareness in contextual situations (a common unconscious process in the human mind), drives AI research to include such things as body and natural language. These topics have become much more complex than originally projected, and thus have driven the interest of Artificial Intelligence into many areas of study.

They also include links to Web pages that provide more background information and list resources for future reference. In connection to this background knowledge, they clearly indicated how the focus of their project connected to their story by emphasizing the ethical considerations involved in development of this kind of technology:

In a number of ways computer science and engineering are like the law profession, all three rely on precedents to make decisions. A computer scientist always wants to go into new situation prepared by a prior precedent.

Unfortunately in the rapidly developing field of computer science, precedents are not available, or they are of limited use. The solution to the short fall is the world of fiction. Fiction allows the computer science community to explore the ethical implications of their work, even if the necessary advances will not be available for years to come. By creating an ethical precedent, the computer scientist will be prepared for the road ahead, and he/she will be unhindered by the limited existing “real world” precedents. The ability to be forward looking makes fiction an extremely important aspect to a well rounded Computer Scientist.

This group identified fiction—specifically science fiction—as one way to fill the gap created by unavailable precedents in the fairly new field of computer science. Because science fiction often depicts computerized societies, it creates, according to this group, an “ethical precedent.” By focusing on the ethics of artificial intelligence, they attend to the contexts relevant to such a technology and address the humanistic components that interest technical communication teachers. Interestingly, they did not ignore their second audience—other students in the class who would be in attendance for their presentations. In both cases, these students addressed attitudes, motivations, skill, education, and interest of their audience in order to “relate the presented material to the audience on a personal level.”

Similarly, a student from an early class focused his report on the idea of progress by tracing the history of the engine from combustible to fuel-injected.⁵ For context, this student selected the jalopy in John Steinbeck’s *The Grapes of Wrath* and its Western theme so he could show the “struggle between human and machine.” He also placed his discussion within the larger context of the conflicts between humans: “While the struggle between human and machine was a relatively simple battle, the struggle of humans against nature and the battle between humans proved to be much more difficult to win.” He defended his choice in literature appropriately by saying that the novel “portrays how humans struggle with machines” (the Joads are forced to repair their engine along the way to California), as well as how humans have struggled against nature (the Joads lost their land in the Dust Bowl). He argues that the Joad’s won this struggle because “they were ultimately able to repair the engine and continue along the road,” which represented their future. He associates this struggle with what he sees as the aim of mechanical engineering, that is, “to solve problems that deal with

humans against machines,” and demonstrates that connection by illustrating and describing the dynamics of a fuel-injected system. By contextualizing the theme of progress within *The Grapes of Wrath* and the Western narrative of progress, he demonstrates for teachers one of the underlying struggles important to mechanical engineers.

Another group focused on the role of regulations in the field of civil engineering. To do this, they characterized the building of the Hoover Dam, “when regulations concerning the environment [were] nonexistent,” as an impossibility today in light of “public awareness.” As a context, they pointed to Upton Sinclair’s *The Jungle*, which led to the “passage of the Pure Food and Drug Act of 1906, less than a year after the novel’s publication.” They equated the way *The Jungle* “illustrated how changes in society’s perspective can lead to changes in regulations” with the necessity for engineers “to understand how to identify and analyze. . . public opinion, environmental laws and regulations.” The connection between their historical example of Hoover Dam and *The Jungle* shows how today’s civil engineers must pay more attention to factors such as public opinion, preservation, and environmental protection “prior to construction”—all which help technical communication teachers better understand the nature of work in civil engineering.

The major project works much like the individual assignments in that both operate from a narrative way of knowing. Individual assignments help students learn to identify, describe, and evaluate practices from a critical perspective. They require interpretative acts in the construction of knowledge, encourage connections through contexts, and enable articulations of knowledge in a recognizable form. With the major project, students have an opportunity to engage in, as de Certeau (1984) says, a “narrativizing of practices” that encourages them to consciously consider what work means in their field, how it operates in that field, and their role in completing that work. The triangulating aspect of the major project—the bringing together of the field (or fields), the issues (journal), and the story, or as de Certeau might say, their *art* (its theory and practice)—demonstrates their ability to engage in narrative ways of knowing. The successful projects demonstrated what Bruner (1981) called a story’s “verisimilitude,” that is, the story’s tellability, what makes it worth telling” (13). Their ability to “assign meaning” to their work through narrative constructions included well-designed, content-rich documents that illustrated their competency—their alertness—in

conveying technical information to an audience, while engaged in unrehearsed hermeneutic activities.

CONCLUSION

Instructors adopting a narrative way of knowing as a pedagogical approach need to know that using literature in the technical communication classroom is not necessarily new (see, for example, Kilgore 1981; Karis 1989). These scholars argue, and I agree, that literature can provide both examples of and a context for technical communication; however, they do not encourage the production of technical documents out of the context literature provides. Teaching technical communication as a narrative way of knowing does just that: it not only provides opportunities for helping students develop an understanding of technical information as constructed from a context but also encourages reflective and critical perspectives about that information.

When choosing literature, instructors need to consider carefully whether the literature chosen is conducive to the construction of technical documents. The story should contain examples of collaborative activities, demonstrating limited and full participation and various levels of conflict and cooperation. The action depicted in the story should involve several aspects of people working together, of negotiation of meaning, and of application of that negotiation to a problem. The mutual participation depicted in the story should involve characters trying to figure out the circumstances of their lives, their work, and their world in conjunction with other characters within a context of practice. Stories that are more character-driven might not be able to demonstrate as effectively the kind of mutual participation necessary to engage students in the practices of that community.

If adopting this approach, instructors need not be rhetorical, literary, or narrative theory experts, although they should be able to explain how a particular story provides a context for a particular technical document. When instructing students about the use of literature, instructors should adopt a rhetorical criticism approach, rather than a literary analysis approach, because its emphasis on audience, purpose, and situation better fits the socially constructed theories common today in technical communication discussions. Instructors might find it useful to read current theories about how communities of practice use narrative ways of knowing to sustain relationships within a community (see, for example, Wenger 1998).

More than anything else, I feel compelled to warn instructors adopting this approach that preparing for class and assessing and evaluating course documents can be time consuming, at least in the beginning. Creating scenarios for assignments requires a great deal of creativity: you must situate students within the context of the story in ways that require them to act (through the creation of a technical document). You must also be prepared for the various interpretations students present. I've used this approach for almost five years and inevitably a few students will write on their evaluations that they had difficulty figuring out what I want. These statements come from, I think, their understanding of my written comments on their documents as arguments with their interpretation (rather than as a response to the clarity of their statements).

One technique I recently adopted has helped me better help students evaluate and assess their work in my class. Before completing assignments, I have students engage in an assessment workshop—a method for evaluating technical documents holistically. This method encourages them to exercise their judgment—*before completing an assignment*—by evaluating a technical document according to an assessment rubric that I include in the course materials. In this assessment workshop, the instructor's role is one of guide; she does not score or critique the document herself. Although I have only just begun using this method, I am already discovering that students generally identify the same problems with a document that I would, that students are much more critical than I would be, and that students write better and require fewer revisions because they have an idea about how their documents will be evaluated. Overall, I have found that the longer prep times for course discussions, as well as for the assessment workshop, pay off in time spent responding to and grading students' documents.

Certainly, I can't prove that telling and using stories make students better writers or communicators. I simply believe that stories are a more interesting way to learn. When I run into students after the completion of a class, they inevitably remember *Terrarium* before they remember my name. They always remember the stories.

APPENDIX A

PROCEDURES FOR THINKING ABOUT LITERATURE IN THE TECHNICAL COMMUNICATION CLASSROOM

<i>Competency</i>	<i>Heuristic</i>	<i>Workplace</i>	<i>Knowledge and Skills</i>
<i>Comprehension: What's it all about?</i>	What is the story about? Imagine that you must tell someone else what it is about and you only have one minute. In one sentence, summarize the story. This summary should grasp the essence of the story, that is, how you interpret the overall significance of the story from a particular perspective.	Identification of tasks, activities, and problems.	Summarizing Paraphrasing
<i>Description: What is the Situation?</i>	What is the context/ What are the circumstances of the story? In other words, what's going on? Describing the "context" should go beyond the mere plot (what happened—the events) of the story. It should indicate the relevance of the context to the communicative action.	Identification and articulation of the contexts and constraints affecting a situation.	Analyzing Problem-solving
<i>Configuration: What needs to be done?</i>	What is the exigency of the situation described in the story? What is the communicative action, burden, or problem?	Determination of what kind and form of communication is required in a particular situation.	Evaluation Assessment Decision-Making
<i>Categorization: Who's involved?</i>	Who are the main players and what part do they play in the action of the story? What is their significance to the situation and the exigency?	Identification of the people involved in the communicative action.	Categorization Identification
<i>Reflection: What do you think?</i>	What do you think now that you have thought about the story in these terms?	Figuring it out; telling why, stating reasons.	Critical Thinking Synthesis

APPENDIX B

SAMPLE INDIVIDUAL ASSIGNMENTS

Goals & Objectives

Assignments

	Agriculture Adjustment Act of 1993 <i>The Bones of Plenty</i>	Environmental Protection Act <i>Terrarium</i>
Address the rhetorical situation and appropriate audience	In a memo to Mr. Petersen, a North Dakota farmer considering supporting the AAA, summarize the AAA and <i>The Bones of Plenty</i> and indicate any connections between the two “stories.”	You have recently been hired by The Enclosure Group as a supervising engineer. Dr. Gregory Passio has requested that you evaluate three problem-solving strategies used by various teams of engineers in <i>Terrarium</i> as your first task. Identify, describe, and evaluate, compare and contrast them, and indicate which one you think works best and why.
	In the Netforum discussion for today, discuss why you think the FHA and the farmers had such difficulty communicating with each other. Related in-class activity: In groups of three or four summarize these statements and be prepared to discuss the assumptions underlying the statements (e.g., stereotypes about farmers or government agents).	As a consultant hired by The Enclosure Group, you have been asked by Dr. Zuni Franklin to assess their collaborative processes and make recommendations to the board for improvement. She does not have time to meet with you personally and would like to have your evaluation in writing. In this evaluation identify, describe, and evaluate two collaborative processes and indicate which one you think is best and why in an appropriate form.
	The Judge reviewing Olaf’s proposal for marriage to the German girl has asked for some clarifications of his language. In groups of three or four, respond to the Judge’s request on Olaf’s behalf, defining the following terms (farm, agriculture, farmers, etc.).	Imagine that we have a hearing-impaired student who is accompanied by an interpreter. The purpose of the interpreter is to translate what is said/going on in the class to the student. It is not the interpreter’s job to read class material. Because we can’t expect this interpreter to read <i>Terrarium</i> in order to accurately translate class discussion, we need to create definitions and descriptions of terms specific to <i>Terrarium</i> . Form groups of 3/4, choose one of the terms below, and write a formal, informal, and operational definition for that term. (Terms: ingathering, enclosure, pedbelt, wildgoers, terrarium, chemmies).

Manage the appropriate genre for the rhetorical situation

An FHA agent in charge of getting the news out to farmers about the AAA in an effort to convince them to support the bill. Create a fact sheet for farmers outlining the provisions of the AAA to be used at the Town Hall meeting next Friday.

In preparation for her move to the US, Olaf's wife has requested more information about farming, farming life, and agriculture in general. Choose one of the items below and write and design a technical description to send to her: organizational structure of the US Department of Agriculture, the purpose of the Agriculture Extension Service, directions to Mr. Petersen's farm three miles north of Harvey, ND from Germany, the operation of a combine, the logistics of a windmill, or the purpose of the Morrill Land Grant Act.

As a representative of the Enclosure Group, Dr. Passio has asked you to create a fact sheet informing the residents of Earth of the procedures for moving into the Enclosure. In addition to the procedures, this fact sheet should also include contact information. Your co-worker, Phoenix Marshall is trying to explain to Judith Passio, who has never been in the Enclosure, how certain mechanical devices work. He has asked for your help. In the appropriate genre and tone, choose one of these processes (vaporizers, dismantling cities, pedbelts, eros and chemmie parlors, or establishing Jonah Colony) describe how its works. Your description should include a graphic of some kind.

Write in the appropriate register for the audience and with the right tone for the situation

Technology biography—Choose a character and describe her/his relationship to technology, how that relationship reflects her/his world view, and reflect on that choice as indicative of your own relationship and view of technology.

You have applied for an engineering position with The Enclosure Group by answering a blind ad in the *Enclosure Gazette*. So far, you have had one introductory meeting with government representatives and feel confident that they liked you. You received a letter today from Dr. Zuni Franklin, the Supervising Engineer, at 3980 Enclosure #1, Portland City, CA 00001, indicating that you are one of five other applicants competing for the job. He has asked you to respond to the scenario below in writing to determine if you will be called for a second interview. Using *Terrarium* as a context, respond to Dr. Franklin, indicating your continued interest in the position and identify, analyze and evaluate three problem-solving strategies from the list below. Also, indicate which strategy works best and why. Problems: Death of Sol, Phoenix's fear of Terra, Health Patrollers, Repairing the Enclosure, Zuni's Retirement, Teeg and Phoenix's relationship, Zuni Franklin and Judith Passio, Teeg and her father, Teeg and her mother.

APPENDIX C

SAMPLE COLLABORATIVE ASSIGNMENTS

Goals & Objectives	Assignments	
<p>Create a logical and explicit arrangement that fits the readers, the genre, and the situation</p>	<p>Mechanical Design Area: Mechanical Engineering</p> <p>Focus: Safety</p> <p>Story: "Out of This Furnace" (Dobrejczak)</p> <p>"I choose this story because it illustrated my points in a very personal way. When talking about topics such as mechanical design, it is very easy to get lost in all the technical language without thinking of how the people who use the design are affected. The characters in the story died as a result of poor design of furnaces in the steel mill." (Anthony)</p>	<p>Forestry Area: Forest Management</p> <p>Focus: Sustainability</p> <p>Story: <i>The Wolves of Isle Royale: A Broken Balance</i> (Peterson)</p> <p>"The relationship of dependency between the wolves and moose is a good analogy to humankind's relationship to forestry. The same concept exists as not only do humans depend on good forests, but also the existence of good forests depends on human actions." (Matt, John, Tom, & Jason)</p>
<p>Select and invent content appropriate for the reader and the situation</p>	<p>Engine Design Area: Mechanical Engineering</p> <p>Focus: Progress</p> <p>Story: <i>The Grapes of Wrath</i></p> <p>"<i>The Grapes of Wrath</i> is actually a wonderful selection because it portray how humans struggle with machines (when the Joad's are forced to repair their engine along the way to California), as well as how humans have struggled against nature (the Joad's lost their land in the Dust Bowl." (Matt)</p>	<p>Usability Testing Area: Scientific and Technical Communication</p> <p>Focus: Transparency</p> <p>Story: <i>Brave New World</i> (Huxley)</p> <p>"The society in <i>Brave New World</i> as a whole runs on transparency that goes unchecked. . . . They attempt to gain control by 'pressing the buttons' of those unconscious learned opinions burned into the mind of civilization." (Sara & Curtis)</p>
<p>Employ sound principles of layout and design in the creation of the finished document pages</p>	<p>Firewalls Area: Information Systems</p> <p>Focus: Security</p> <p>Story: <i>ruthless.com</i> (Clancy)</p> <p>"What this story did for me was to give me a way to relate my classroom work with actual outside occurrences that could or may be happening in the work world" (Lucas).</p>	<p>Hoover Dam Area: Environmental Engineering</p> <p>Focus: Regulations</p> <p>Story: <i>The Jungle</i> (Sinclair)</p> <p>"<i>The Jungle</i> provided valuable information for our project because it illustrated how changes in society's perspective can lead to changes in regulations. A novel, report, or article can greatly impact peoples perspective on an issue, leading them to pursue change and force legislation." (Jason, Andrew, Lindsay)</p>