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TEACHING CREATIVITY IN TECHNICAL COMMUNICATION CURRICULA

by

Curtis R. Newbold

A thesis submitted in partial fulfillment
of the requirements for the degree

of

MASTER OF ARTS

in

English

Approved:

Ryan Moeller Major Professor	Kelli Cargile Cook Committee Member
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UTAH STATE UNIVERSITY
Logan, Utah

2008

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ABSTRACT

Teaching Creativity in Technical Communication Curricula

by

Curtis R. Newbold, Master of Arts

Utah State University, 2008

Major Professor: Dr. Ryan Moeller
Department: English

This thesis addresses the need to claim creativity as an essential component to our technical communication curricula as we prepare students for what their managers want. While many technical communication programs at universities across the country have recognized a need to teach skills beyond "writing technically," few, if any, have addressed or "claimed" a concept such as creativity that helps build these skills. I argue that creativity is what managers are looking for and what technical communication programs are already implementing. Claiming this concept will help us further define a discipline that is becoming much richer and help students develop an understanding of what they will be expected to do. Furthermore, this thesis examines a creative process whereby technical communicators can learn and practice creative abilities. Ultimately, the present study examines four pedagogical theories to consider for the implementation of creativity into the technical communication curricula.

(80 pages)

For Macie, for reminding me of the far more important things in life.

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I would like to thank Kenneth T. Rainey, Roy K. Turner, and David Dayton for allowing me to use their raw data from the research they conducted for their article "Core Competencies for Technical Communicators." I would especially like to thank my major professor, Dr. Ryan Moeller, for his unselfish dedication and the countless hours he spent with me on this thesis and throughout my graduate tenure at Utah State University.

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Curtis R. Newbold

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CHAPTER 1

INTRODUCTION

Creativity is an ambiguous concept that is seldom found adjacent to *technical communication*. Recent studies (Rainey, Turner, and Dayton; Whiteside) and a perusal of undergraduate technical communication programs across the country, however, show a managerial demand and pedagogical urgency to apply (and teach) such a concept. Technical communication program directors seem to recognize—at least as far as their program websites articulate—that managers expect graduates to possess skills much more complex than an ability to "communicate technically." These skills are often labeled in job ads under terms (verbs) such as *develop*, *apply*, *generate*, *problem-solve*, *create*, *design*, *multitask*, and so forth. Creativity is essentially the backbone to the acquisition of these "other" complex skills. And, although many programs offer courses that enhance students' abilities to acquire these skills, few, if any, claim creativity as an essential part of their curriculum. A conscious articulation and claiming of creativity—among both faculty and students—as a strategy to confront the complex demands of technical communications occupations will largely enhance the graduate's ability to tackle those demands.

It is apparent, especially when looking at current job ads and at recent surveys given to employers of technical communicators, that there are skills related to the profession that involve many components beyond writing. The need for these "other" skills could be attributed in part to the fact that the profession no longer finds itself strictly attached to engineering; in fact, technical communicators find themselves in jobs ranging from website administrators to publication managers to multimedia editors.

Technical communication has become a profession of communication liaisons who, either through written documents, face-to-face contact, or electronically-enhanced communication software, share ideas, resolve personnel conflicts, and brainstorm time management strategies with CEOs, legal departments, engineers, marketers, customer support groups, production managers, publishers, translators, and graphic artists. It has become a profession invariably connected to very complex webs of technology, culture, and public policy (Ornatowski 596). Simply put, as the field continues to grow and as employers look for more than just good writing skills (like grammar, mechanics, organization, formatting, voice, style, content, persuasion, and so forth), the demand also grows for academic departments to weave into their curricula a means whereby students can learn the non-writing skills related to technical communication. I argue that these skills can be enhanced by one fundamental concept: creativity.

Creativity is already finding its place in many technical communication curricula. A field once considered solely technical has crossed a threshold into a much more rich and diverse discipline. Perhaps we could say that *technical*—a term that has been (within the last century) culturally perceived as meaning simply skills in scientific and mechanical arenas—has at last reincorporated its traditional etymological foundation in craftsmanship and art. While technical communication programs and pedagogies are still fundamentally grounded in instruction covering scientific and technical writing, usability studies, software, computer-mediated communication, and web publishing, few programs stop there. It is obvious that an awareness of the skills beyond "writing technically" has greatly influenced the course offerings in many technical communication curricula. Most undergraduate programs (Utah State University, University of Washington, and Michigan

Tech University, to name a few) offer courses that delve into rhetoric, design, product management, visual and digital media, ethics, publication production, gaming, and even photography. Program administrators have certainly sensed an urgency to incorporate instruction that builds on the historical understanding of technical (meaning art and craftsmanship in) communication. And while the field has repeatedly claimed the scientific and mechanical components of technical communication, the claiming of creativity will identify the artistic traits that are rapidly characterizing the direction of the field.

This thesis first seeks to give a definition of creativity that can be used to guide our technical communication curricula. The establishment of this definition will broaden our perspective on the pedagogical implications of creativity which will, in turn, better allow us to guide our lesson plans, our courses, and our programs. Chapter 2 begins by reviewing a managerial expectation that graduates are able to apply creativity in the workplace. Examining the expectations of employers—realizing that nearly 19% of the skills they expect their employees to possess are related to creativity and that 74% of managers surveyed named at least one creative skill—gives a great deal of exigency to this topic. I then define creativity and present it as a functional channel to develop the much richer skills set determined necessary by employers. In chapter two, I further investigate the progress and direction of the field, specifically in regards to how we are defining technical communication and its pedagogical objectives and how creativity should fall into those definitions. I outline a creative whereby instructors can begin to conceptualize how teaching creativity can take place. This process places agency with the technical communicator who learns and practices creative skills. The chapter concludes

as I claim that creativity is valued, it is often being taught, but it has not been recognized as such. Neither the academic or professional arena of technical communication currently claim creativity as the essential ingredient to acquiring the skills that reach beyond "writing technically." Chapter 2 argues why it is important we begin to talk about our work as being grounded in the creative process.

In chapter 3, I argue that this understanding of creativity and the creative process can be applied to the classroom using common pedagogical theories. While this exploration into the pedagogical implications and possibilities of teaching creativity is far from comprehensive, it allows the field of technical communication to begin envisaging practical teaching theories and applications of incorporating creativity into technical communication curricula. The chapter begins by breaking the creative process into two areas—analysis and invention. These categories can be viewed as the two major subdivisions of creativity instruction. Among these two areas, I offer four pedagogical theories as a means of conceptualizing how to teach creativity: rhetorical theory, social/collaborative theory, play theory, and rhetorical invention. I conclude with recommendations for further research and conversation about creativity, its definition, the creative process, and the theories to teach it.

CHAPTER 2

VALUE OF AND NEED TO TEACH CREATIVITY

Creativity: What Managers Want

Recent research projects involving technical communication managers have been surveyed about their expectations for their new employees (Whiteside; Rainey, Turner, and Dayton). These surveys show an obvious demand from employers that technical communication employees possess a skills set much richer than sheer writing abilities. Interestingly, the data taken from these surveys, though not originally examined with the question of creativity in mind, show a managerial expectation that technical communicators exhibit creativity. In this section, I briefly discuss the findings of Whiteside's research as it applies to the "non-writing" skills expected by employers, and go into more depth about the surveys used by Rainey, Turner, and Dayton. Using the raw data from their survey, I argue that there is significant evidence to show that creativity is expected. More time will be spent on the definition of creativity after this section, but in order to understand the connection of the data to creativity, let the following two paragraphs suffice as a simple explanation of what creativity is and how managers are looking for it.

Household dictionaries, though varying slightly in word choice, frequently label creativity as, roughly, "creating something out of nothing." This definition is so paradoxical, it is obvious that without further critical analysis, the concept will not serve any field (Johnson and Carruthers 998). Scholars and researchers across many disciplines have advanced more useful definitions. Linda Candy and Earnest Edmonds, researchers

of computer science, have defined creativity as "a set of activities that give rise to an outcome or product that is recognized to be innovative as judged by an external standard" (4). Organizational creativity theorists, Woodman, Sawyer, and Griffin, in their article "Toward a Theory of Organizational Creativity" explain that creativity is "doing something new for the first time or creating new knowledge." They go on to say that creativity is "the complex product of a person's behavior in a given situation," and that creativity can be associated with a process, a product, a person, a situation, or any combination of these (293–321). Kerrie Unsworth, an organizational psychologist, compares several sociological and psychological definitions and determines that creativity is often argued as "the production of novel ideas that are useful and appropriate to the situation" (289). Play theorists such as Brian Sutton-Smith associate creativity with terms such as fancy, imagination, flexibility, art, and romanticism (128).

As noted from these definitions, terms often associated with creativity include *innovation*, *novel*, *new*, *flexible*, and *imaginative*. These terms are particularly useful in regard to the building of new knowledge—knowledge that confronts complex situations—that leads to new solutions. In other words, creativity is what produces an ability to make meaning out of an environment and to problem-solve based on that meaning.

Managers across the country make it clear—both by the way they articulate job descriptions and requirements in their ads and when asked personally and through formal surveys—that there are skills that technical communicators are expected to possess that reach beyond traditional communication and technical skills. As I perused several job ads for technical communicators, I found that terms like *problem-solve*, *generate*, *develop*,

apply, *multitask*, *create*, *design*, and *innovate* often appeared. Moreover, two recent studies found managers articulating these same skills as being important for recent graduates (Rainey, Turner, and Dayton; Whiteside). This has raised the question: how can we adapt curricula to help technical communication students acquire these skills? I argue that teaching creativity will enable students to better learn and apply these skills. Students who apply creativity in the way they think and respond to complex problems will ultimately be that much more prepared to give employers what they are looking for. Programs that acknowledge creativity as a vital component to their instruction will thus likely be able to better prepare their students for their jobs as technical communicators.

Aimee Whiteside, in her article "The Skills that Technical Communicators Need: An Investigation of Technical Communication Graduates, Managers, and Curricula," notes that there is an obvious need to teach students many diverse skills and that programs are beginning to recognize this: "academic programs…have undergone intense research in the past two decades to determine what employers want, what technical communicators need, and what academia can and should provide" (304). The research Whiteside is referring to has developed a broader understanding of what technical communicators will be expected to do: "not only assume responsibility for his/her role as a communicator with technical aptitude, but also understand the idiosyncrasies and sensitivities associated with communication in a multicultural, global world" (304). Whiteside conducted a research project where she surveyed both recent graduates and managers about the skills they felt they had when entering the workforce in relation to what skills they needed. While many graduates did express concern for not having practical skills in business operations, software tools, and computer languages, 33% felt

deficient in project management skills. One respondent commented about his lack of management skills required when starting his new job: “You have to juggle multiple projects without much direction” (309). Managers had similar responses. While 50% of managers felt that their newly hired technical communicators had a firm grasp in written communication, software tools, and oral communication, 50% also suggested that project management, problem-solving skills, and business operations knowledge were problem areas (311). Other needs that managers mentioned included the following:

- “Hands-on training on industry tools”
- “Lots of internship choices”
- “Experience with handling SMEs not responding”
- “Ability to multi-task”
- “How to work with experienced writers”
- “Time management skills”
- “Usability design” (311)

While not all of these necessarily relate to creativity, I argue that some certainly do (especially *multitask* and *design*). Interestingly, this study found that the top four skills that employees lack when entering the field are first, business operations knowledge; second, project management; third, problem-solving skills; and fourth, scientific and technical knowledge (313). I argue that two of these (project management and problem-solving) would be directly improved with a foundation in creativity. My brief explanation of creativity earlier noted that creative persons are able to make meaning out of their environment and problem-solve based on that meaning. Project management and problem-solving are closely related—an employee given multiple projects will be required to juggle priorities, analyze the situation, and offer good solutions to the occurring problems.

Kenneth T. Rainey, Roy K. Turner, and David Dayton conducted a similar research project. Their findings were written in an essay entitled "Core Competencies for Technical Communicators." As a part of this project, 64 managers responded to questions about what skills they looked for when hiring new employees. Their research was originally conducted to get an overall sense of what employers look for in new technical communication employees.

I was given permission from the original authors to use this data with a new set of research questions applied: *Do technical communication employers value creativity?* and *Of the skills employers expect their technical communicators to possess, how many can be improved with a foundation in creativity?* In order to answer these questions, I divided the 421 skills into six skills-set categories: "Behavior/Personality," "Technology/ Technical Expertise," "Creativity," "Communication," "Teamwork/Social," and "Other." I assigned each skill to a category by first defining the categories, then second by applying each skill to the categories' definitions. For four of these categories ("Behavior/Personality," "Technology/Technical Expertise," "Communication," and "Teamwork/Social"), I used commonly accepted definitions of the word—the category title—as seen in **Table 1** on page 11. The category of "Creativity" was defined by the definition I outline later in this chapter (an explanation of how I arrived at that definition is also given later). The "Other" category was developed as I came across a few skills that, for a variety of reasons, seemed not to fit any of the other five categories, thus making them statistical outliers.

In response to a prompt intended to be as unbiased as possible, each manager was asked to name what he or she felt were necessary skills for their technical communicators

to possess in their company. Their responses came in both bulleted lists and in paragraph format. A common response looked like the following:

> I would look for these skills: knowledge of the publications development life cycle and how to carry out a medium-sized project independently (needs analysis and requirements statements through product publication), ability to manage multiple projects, some knowledge of our business, excellent business procedure writing skills, experience in business process analysis, print and web page layout design proficiency, intermediate-level knowledge of the tools we use, ability to work in a chaotic business situation, ability to recognize when a situation needs to be elevated for resolution, ability to work within our corporate value system, self-motivation and drive.

Responses such as this show an obvious expectation that technical communicators are proficient in much more than writing skills. These managers came from varying organizations from across the country and from a wide variety of industry backgrounds including computer hardware, entertainment, telecommunications, financial services, biotechnology, information technology, medical, broadcasting, aviation, and so forth. Some listed only a handful of skills while others listed 20–30. In all, the 64 managers named 421 skills. Many of the 421 skills were often repeated, as one would expect many employers to require similar competencies.

It became obvious as I broke down the responses, evaluated the kinds of skills expected, and divided them into groups that creativity was definitely valued and a relatively high percentage of skills expected (19 %) were grounded in creativity. Each of these categories included several skills as listed in **Table 1**. Because this thesis examines creativity, in the category named “Creativity,” I have denoted the number of times each skill was named in parentheses.

Table 1: Skills Categories

Category and Definition	Skills Applied to Category
Behavior/Personality: *Behavior*—the manner of conducting oneself; *Personality*—the complex of characteristics that distinguishes an individual.	Curiosity, a sense of urgency, sense of project ownership, inquisitive work ethic, positive attitude, self-starter, self-motivated, no fear of hardware, punctual, sense of humor, professional demeanor, take initiative, integrity, trust, accountable, responsible, honest, dynamic, active, mature, persistent, etc.
Technology/Technical Expertise: the specialized aspects of a particular field of endeavor.	Knowledge in computer programs (such as Word, Dreamweaver, Visio, Illustrator, Acrobat, Framemaker, RoboHelp, etc.); knowledge in computer languages (such as HTML, XML, CMMI, etc.); familiarity with fields (such as microprocessor design, electrical engineering, information architecture, audio/video scripts, single-sourcing, etc.); knowledge or experience in business/industry; and having completed computer courses.
Creativity: the ability to apply a complex understanding of a situated problem to an innovative solution.	The ability to grasp and distill complex information (19), ability to learn new tools (13), project-management skills (11), ability to problem-solve (5), flexible (8), understand audience (3), create and design illustrations and documentation (3), innovative (2), discovery skills (1), ability to juggle priorities (1), make good decisions (1), research skills (1), ability to see a need and fill it (1), ability to develop self (1), make wise decisions (1), deal creatively with SMEs (1).
Communication: a process by which information is exchanged between individuals through a common system of symbols, signs, and behaviors.	Strong writing, editing, and proofreading skills, good oral communication, strong knowledge of grammar, ability to organize information, and have a love for language.
Teamwork/Social: work done by several associates with each doing a part but all subordinating personal prominence to the efficiency of the whole.	Ability to work in teams, have respect for others, possess good people skills and interviewing skills, have an approachable demeanor, be capable of giving/receiving criticism, possess extroversion, be able to understand/respond well to multiple personality types, and have political savvy and diplomacy skills.
Other: No definition given.	Time management, listening skills, detail-oriented, logical thinking skills, understanding of specific business, ability to schedule tasks.

It can be observed that skills in **Table 1** such as *responsible*, *honest*, and *mature*, for example (found in the "Behavior/Personality" category) closely relate to the idea of "conducting oneself" and "characteristics that distinguish an individual"—as noted in the category definition. Some terms, such as *curious*, were a bit more difficult to place, as it could be argued that creative people are often curious, thus making it also a creative ability. While this could be true, though, I perceived curiosity as a trait that more closely associated with desire—a characteristic that distinguishes an individual—than with applying complex understandings to problems, and thus labeled it a "Personality/

Behavior" skill. Also, the skills in "Technology/Technical Expertise" closely relate to the idea of knowledge in "specialized aspects of a particular field or endeavor." The same can be said for the "Communication" and "Teamwork/Social" categories. A few skills, such as *time management* and *ability to juggle priorities* seem closely related. However, I viewed time management as an organizational skill, one similar to scheduling. Juggling priorities, however, reaches a step further by prioritizing projects based on situated context. Thus I argue the latter is a much more creative skill.

Later in this chapter, I explain in more detail the nuances of the definition of creativity as it applies to "complex understanding[s] of problems" and "innovative solutions" (above in **Table 1**). To clarify my argument at hand, however, that employers are looking for skills related to creativity and that the skills in the "Creativity" category do relate to this definition, let me briefly explain some of the most recurring skills in that category. I was interested in placing skills in "Creativity" that involve a complicated understanding of situation, context, and audience. These skills also involve a need to delicately and innovatively apply solutions. Critics may argue that skills such as *project management*, *problem-solving*, or *juggle priorities* are process-driven and systematized, thus negating a need for creativity. This may be true if we reduce the definition of creativity to its commonly-held, household-dictionary definition: to create something out of nothing. However, a more thorough examination of creativity realizes that when creativity is applied, it is in fact developing new knowledge based on previous knowledge and considers context. With a skill such as project management, much more is involved than a simple list of tasks that must be accomplished. Rather, each project is situated in a multifaceted context that involves institutional bureaucracy, legal and ethical

considerations, technological abilities, economic consequences, personality constraints, deadlines, and so forth. Good project management also considers historical institutional decisions, resources, and multiple options. Effective project management means understanding the entire situation and constantly making good decisions based on that knowledge. Thus, creative solutions should be frequently worked through, developed, implemented, and reevaluated within new contexts. The same can be said of the skills *problem-solving* and *juggling priorities*. The person who is most effective at each of these skills will approach each task creatively. This will be clarified in more detail at the end of this chapter as I delineate a creative process. I selected skills in the "Creativity" category that similarly related to understanding context and developing new knowledge based on the old.

It must be noted, though, that some of these skills could overlap into multiple groups. Some "Teamwork/Social" skills could fall under "Behavior/Personality" for example (i.e. respect for others). Or, some of the "Communication" skills will be directly related to "Teamwork/Social" or "Creativity." A few skills, such as listening, scheduling, and logical thinking were difficult to relate to any of the other categories and were thus labeled "Other." Noting this, however, I was still able to separate each skill into categories that applied most often. In other words, good interviewing skills could be argued as a personality trait, and thus fall under "Behavior/Personality"; however, because of the social nature of interviewing, and because the skill is often improved through practice and experience with people, it would most often be considered a social or people skill. This does make for an arguably subjective grouping of skills. I refute that argument, however, by making note that *most* of the skills would have a hard time falling

into multiple categories. *Mature*, for example, is almost always going to be considered a "Personality/Behavior"-related trait (or skill) and *electrical engineering experience* could only be considered a "Technology/Technical Expertise"-related skill.

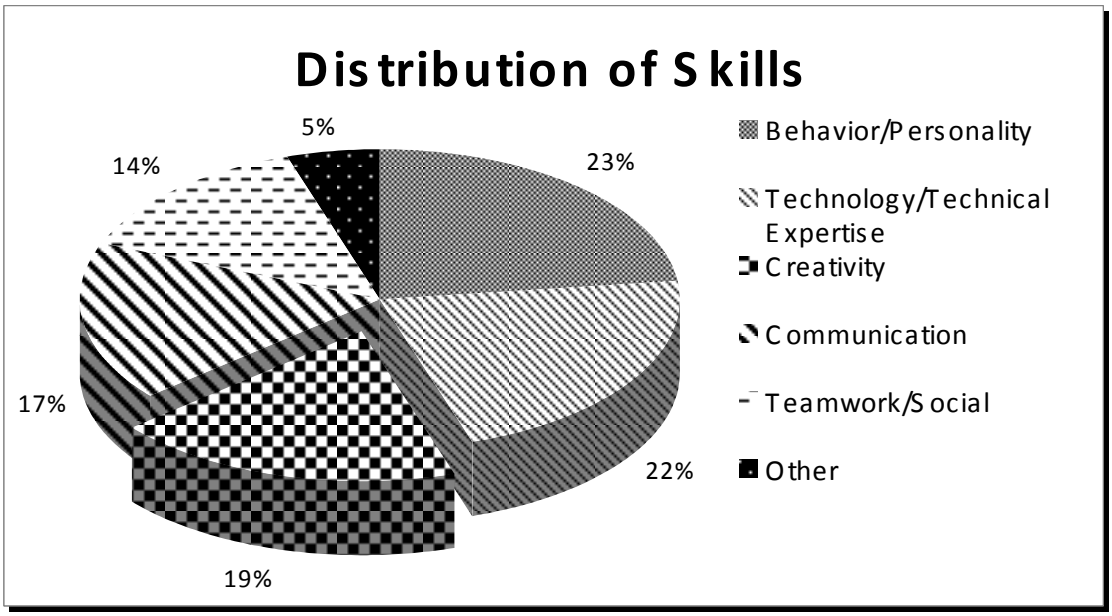
It is important to note the obvious expectation that managers expect their employees to possess many skills beyond simply good writing—and many of these can be associated with creativity. Consider the following list of expected skills by one respondent (a very common response). [S]he expects his or her employees to:

> Have excellent writing skills, be able to solve problems, manage time well, cope with multiple tasks at the same time, be able to switch from one task to another without undue stress and without negatively impacting other team members, collaborate with other writers, shoulder your share of the load, be able to work effectively with engineers, be able to "translate" developer-speak into understandable text, understand our users, be able to learn to use our multiple similar products, be able to learn to use our documentation tools, follow style and standard requirements, be willing to work extra time when necessary to meet deadlines, cope with stress and frustration, laugh lots, and don't take yourself too seriously.

The first statement does have to do with writing, but the next 15 have to do with other abilities and traits. Many of these have to do with the ability to make meaning, to problem-solve, and to be flexible. This manager asks, for example, that the employee be able to "translate" developer-speak into understandable text. This skill alone requires an ability to understand multiple audiences and the context of use, and to be able to distill complex information and creatively reform it to be clear to a different audience. Other skills mentioned, like *collaborate with others*, *shoulder your share of the load*, and *cope with multiple tasks at the same time* require abilities much more complex than good writing. They involve an ability to contextualize and situate and to discover and implement appropriate solutions based on the situation.

While all managers required traditional skills such as *the ability to communicate effectively, good writing and grammar skills*, and *knowledge of computer languages*, 75% of the respondents (48 of the 64) required at least one skill that I have associated with creativity. Several, in fact, named creativity specifically as one of the characteristics they look for (even if their interpretation of creativity is somewhat different than outlined in this thesis, it is obvious they are looking for innovative employees who can develop new solutions to situated problems). **Figure 1** below shows the distribution of the skills required by employees.

Figure 1: Distribution of Skills



This pie chart shows a significant figure—one in five of the skills that employers look for is associated with creativity. Perhaps an even more noticeable fact is that creativity ranks higher (although only slightly) than *teamwork/social* skills and even *communication* skills and is comparable to *behavior/personality* and *technology/technical*

expertise. To make these numbers even more significant, it is worth mentioning that some researchers have found direct relationships with creative people and behavioral/ personality traits such as *self-motivated*, *action-oriented*, and *active*. Beth Henessey, psychologist at Wellesley College, in her article "Self-Determination Theory and the Social Psychology of Creativity" proposes that "there is a direct relation between the motivational orientation brought to a task and creativity of performance on that task." She further states that intrinsic motivation is directly related to creativity (294). Thus, according to Henessey, when a person is given the opportunity to be creative, she becomes more motivated, and thus more productive.

Ronald D. Klein, in "An Inquiry Into the Factors Related to Creativity," explains that one of the main characteristics of someone who is creative is that they are action-oriented. He says, of a person who has developed creative abilities: "Creativity is an active process. It demands reaching out beyond the safe, known boundaries. It is not enough to say, 'I could have done that.' Creative behavior is a thin but real line between what could have been and what is." He continues by saying that a creative person is also responsible and accomplishes more by "[determining] where they are, whether they want to be there, where they *do* want to be, and how they are going to get there" (259).

According to Woodman, Sawyer, and Griffin in "Toward a Theory of Organizational Creativity," certain personality traits often coincide with people who are creative. They quote Barron and Harrington, saying that these traits include:

> High valuation of esthetic qualities in experience, broad interests, attraction to complexity, high energy, independence of judgment, autonomy, intuition, self-confidence, ability to resolve antimonies or to accommodate apparently opposite or conflicting traits in one's self-concept. (Barron and Harrington qtd. by Woodman, Sawyer, and Griffin 298)

While it is certainly arguable that many personality/behavior traits are not directly related to creativity, many could be. This, of course, means that creativity could possibly have even greater influence than affecting just the 19% of skills noted above. Teaching creativity could possibly mean indirectly teaching behaviors that lead to productivity and attributes such as attraction to complexity, high energy, and intuition.

Because I am associating creativity directly with making meaning and problem solving, many of the skills managers want their employees to possess are associated with creativity. If one in five technical communication competencies can be enhanced with creative abilities, it only makes sense that technical communication programs would implement such instruction into their curricula. And while pedagogical strategies are being implemented to address the non-writing skills of technical communication, it is imperative that we recognize that it is creativity that ultimately prepares students for managerial expectations.

Creativity: Coming to Terms

Because creativity is valued by employers as an important part of a technical communicator's repertoire, I argue that there is an urgency to define creativity for the field. This will help us to better implement its instruction and help our students to better understand how to take it with them into the field. Acknowledging, though, as Jo Allen did in her article "The Case Against Defining Technical Writing," that there are limitations to definitions, I argue that a definition is necessary in order to define the objectives of implementing the teaching of creativity into our pedagogies and in our textbooks. There cannot be any one definition of creativity that will capture every degree

and angle as it relates to professional communication, no matter how well-explored and thorough that definition may be. However, without delineating some definition of creativity in relation to the field, effective instruction of the subject will be muddled because it will be relying on ambiguity.

It is no easy task, however, to isolate a comprehensive definition of a subject that covers a spectrum of concepts from artistic ingenuity to analytic pragmatism. Some have argued that creativity is actually impossible to define. Johnson and Carruthers argue that "the debate [about the difficulties of defining creativity] necessarily occurs in a variety of contexts since creativity transcends human nature, academic disciplines, and cultural boundaries" (999). A concept that transcends so many boundaries undoubtedly raises questions about its ability to be comprehensible or, perhaps even worse, worth discussing. Vague and watered-down definitions of creativity offer little more than an elementary perception of a much more complicated issue. If we are, then, to confront the exigency of incorporating pedagogical strategies to teach students abilities that technical communication managers expect, a concretized definition of creativity must be established.

As students prepare to work as professional communicators, and as they begin their new occupations in the workforce, they will need to make sense of their job first, their tasks, their environment, their social surroundings, and how they fit into each. They will also need to learn to adapt and to mold. Ken McCallister, in his book *Game Work: Language, Power, and Computer Game Culture,* describes the computer game industry as a dialectic, "a complicated and ever-changing system constructed out of innumerable relationships among people, things, and symbols, all of which are in turn connected to

other vast dialectical systems" (16). Technical communication can be viewed in much the same way: a complex and ever-changing field that is constructed out of and influenced by countless relationships among people, things, and symbols. A technical communicator, for example, who works in a government organization will be faced with conflicting personalities on various government documentation projects in which she will be faced with decisions that involve and are influenced by institutional jargon, codes, symbols, technologies, and so forth. In a dialectical system such as this, she will make sense and meaning out of her surroundings, her past and present experiences, and through her relationships to the other people, things, and symbols around her. The dialectic, then, becomes clear as she—a person who is involved in that dialectic—experiences *metanoia*, an ideological concept defined as "…seeing a dialectical contradiction in a different way; a moment when a struggle resolves into something new but with characteristics of the old" (202). As *metanoia* occurs, she makes new sense out of the environment; she is better prepared to make a decision based on her new knowledge that has been shaped by the dialectic.

McAllister describes metanoetic experiences as something much deeper than a simple change of mind. Applying this concept to a gamer, he explains the difference:

> A player who realizes that a particular battle in a war simulation can only be won by means of an air strike and the player that realizes that the entire simulation is constructed on the idea that air dominance is the key to victory in all modern warfare. The former case causes the player to change his or her strategy only vis-à-vis a particular scenario in the game, whereas the latter causes the player to reconsider both local game strategy and the history of real wars. (60)

The latter scenario can be related to the technical communicator who finds him or herself faced with a complicated problem. A few years ago, it was my job (working under the

supervision of a project manager) to oversee the translation of foreign user's manuals by working closely with translators, quality assurance, legal departments, marketing, and engineers. Under a holiday rush, we were told that nearly double the normal production rate of user's manuals would be expected in the next two months. We first thought of an immediate fix to this "particular scenario:" we could hire an intern to assist in the editing and printing process of the documents. We soon realized (after much deliberation), that a better solution—one richer in understanding and long-term effectiveness—could be obtained as we rhetorically analyzed the dialectical system in which we operated. While we didn't necessarily realize it at the time, we were engaged in the creative process. The metanoetic moment we experienced happened (though we certainly didn't recognize it as such then) as we evaluated the long-term costs versus benefits to the company and began to creatively work through a new solution. As we considered our resources, current employees, previous processes, and future company goals and product projections, we realized that it was not only possible but better to restructure the process. Hiring an intern would cost time and money to train and would not solve the long-term goal of increasing foreign manual production in future years. Rather, locating software that could match English text to foreign text in previously produced manuals seemed more effective over the long-term. We then entirely restructured the way we had been creating foreign manuals by assigning ourselves new tasks. We developed a system for making the software work through three different computers and, literally, changed our workspace so that we could rotate desks. The process was initially complicated and time consuming, but ultimately helped us to significantly reduce translation costs and time to complete the manuals.

When creativity is applied, it opens a person's mind to understanding complex social, cultural, and technological situations that are a part of the technical communication dialectic. As students are taught to map these complex components of the field, they will begin to understand the metanoetic experiences that occur within their own minds, thus engaging themselves in critical thinking. They will be able to learn and make sense of the environment, transcend traditional methodologies, and be flexible with or create new knowledge, ideas, solutions, processes, products, or behaviors. In short, students—technical communicators—who exercise creativity, employ an ability to make meaning out of their surroundings, making them better decision-makers and more effective problem-solvers.

Because of the complexity and ever-changing nature of workplace situations, it often seems that problem-solving is one of the most necessary skills an employee can possess. If a person can problem-solve, it is likely he or she will also be able to innovate, strategize, invent, adapt, discover, develop, and multi-task. The creative process enhances a person's ability to problem-solve since it allows the mind to be flexible, and to create new knowledge, ideas, solutions, processes, products, behaviors, or any combination of these, that is useful and appropriate to any given situation. Thomas Leddy, in his article "Is the Creative Process in Art a Form of Puzzle Solving?" states that "creativity is incremental," and that, "artistic and scientific creativity are essentially like everyday problem-solving" (83). If creativity is learned incrementally—through application of the creative process—the ability to conquer more complex "everyday" problems will likely ensue. This is shown in the translation of user's manuals example above.

Klein, in his list of characteristics of creative persons, hints at how creativity is related to problem-solving abilities. He says the creative person:

> broaden[s] their perception so that they take in more stimulation. Increased stimulation in turn makes possible more connection among ideas. The array of behavioral choices is unlimited…. The creative individual is a generalist who is capable in many skills and explores diverse interests. (259)

As we teach creativity, we are teaching students to broaden their perceptions and make connections between ideas. We are teaching them to explore the problem at hand discover new methods, "explore diverse interests," that will lead to solving a problem. Thus, I define creativity as:

> *The ability to apply a complex understanding of a situated problem to an innovative solution*.

This definition can be applied to technical communication curricula as students and teachers learn *how* to approach the "problems" graduates will undoubtedly be asked to solve in their new occupations.

This understanding is useless, however, if we are unable to conceptualize teaching it. I argue that creativity can be acquired through a process whereby technical communicators comprehend their dialectical environment and develop—create—useful propositions and solutions. I argue that this creative process can be subdivided in five comprehensive steps as seen in **Table 2** below (please refer to **Figure 2** in Chapter 2 of this thesis for a visual representation of the creative process and heuristic evaluation).

Table 2: Steps of the Creative Process

Step 1: Observation and Analysis	Technical communicators must first construct an individualistic comprehension of the dialectic within the institutional context in which they work. Through careful observation and critical analysis, they are able to make connections between the people (interoffice relationships, personality types, behaviors, and attitudes), things (products, procedures, technologies, and tools) and symbols (colors, shapes, workspaces, terminologies, and languages) that surround them.
Step 2: Historical Understanding and Application	Second, technical communicators must create present context out of their institution's histories. Grappling with and coherently understanding the institution's development, managerial decisions, former processes, mistakes, and successes is a necessary part of constructing new knowledge that is useful and appropriate to the given situation.
Step 3: Resource Evaluation	Third, technical communicators must closely evaluate the resources—time, money, technology, personnel, and knowledge—available within the context of the situation and the futurity of the dialectical system.
Step 4: Options Evaluation	Assuming the previous three steps have taken place, the technical communicator can now evaluate what options are viable. Often, multiple solutions are possible to a given problem and thus require scrutiny and comparison/contrast evaluation to ensure which solution best fits the needs and the abilities of the institution.
Step 5: Implementation	Finally, the technical communicator can not only offer rhetorically comprehensive reasons and supportive evidence for the solution, but can implement the solution.

Some of the most frequently recurring skills that managers asked for were the ability to learn new tools, project-management skills, the ability to grasp and distill complex information, the ability to problem-solve, ability to be flexible, and the ability to understand audience. Although not stated necessarily as creativity, managers were asking

their employees to possess the ability to do the five steps outlined above. These five steps allow employees to learn new tools because they present a methodology of evaluating technologies and making them work for the context of the institution; they allow employees to manage projects that involve complex company politics, culture, and technology; they help employees to understand context, thus making them more efficient in distilling information to multiple audiences. These all, of course, lead to better decision-making, which makes for better problem solving that is flexible and adaptable for multiple audiences. I argue that the creative process offers a means of developing these kinds of skills that managers are repeatedly requesting from their technical communication hires.

The following section takes this definition of creativity and the creative process and explicates why we as a field are ready to begin claiming it as an important part of our curricula.

Teaching Creativity: Why We Are Ready to Claim It

A very obvious question, first of all, would be to ask if it is even possible to teach creativity. Many have claimed it impossible. David Best, from the department of philosophy at the University of Swansea, noted that a British newspaper actually entitled one of their stories, "Creativity Cannot Be Taught." This belief, he claims, is shared by many people, including teachers (280). Perhaps when applying traditional definitions to creativity, conceptualizing the teaching of creativity seems absurd. Creativity could be argued as an innate personality trait—improved (at best) with practice, but acquired only at birth. I argue, however, that this mindset is fallacious—at least when we apply my

definition to creativity and approach it as a process. Creativity is approachable in a classroom environment and students are capable of getting better at it just they are capable of getting better at algebraic formulas.

Consider an analogy proposed by Best. A sailor who finds it necessary to restructure his ship mid-ocean will obviously not be able to abandon ship to make the changes. The changes he is capable of depend on his resources and the original character of the ship. "Nevertheless, progressively, he may be able to make considerable, even radical alterations in the structure of the ship, while depending on its support" (284). Similarly, a student who is offered a problem with no solution will be reliant on his/her understanding of the problem and the surroundings. While a perfect solution may never be reached (depending on the student), the student will have experienced opportunities to "alter" the problem at hand. This experience requires the cognitive awareness of one's surroundings to reach innovative solutions as suggested in the definition of creativity above. With practice, like in any other discipline, a student will improve his/her creative abilities.

An assignment where students are given an existing text-heavy document but told to re-create it three times—once as a document used within a particular organization, once for an online, interactive audience, and once for consumer-oriented documentation—would be a good example of this. Such an assignment would require students to practice altering the problems and developing new solutions. Or, a course structured around a service-learning project where students are asked to work directly with a client where a problem is introduced and the students are expected to develop a solution could similarly improve creative skills. Ann M. Blakeslee surveyed a course

where students did just that. Engineering students visited a client's workplace where they were asked by technical writers to develop a set of icons for both hard copy and online Unix documentations. Students were told about the international audience they would be addressing and were given several smaller projects to complete the larger assignment (355). This section of the course alone (taking seven weeks to complete) taught students how to analyze critically the context, audience, and resources, and to develop solutions that were generated entirely on their own. Continued practice such as these in a technical communication curriculum prepare to students to explore possibilities by understanding context and developing and implementing creative solutions. Just as a student could expect to improve his or her skills in chemistry after applying several formulas to multiple experiments, so too would a student improve his or her ability to implement creative solutions to technical communication problems.

In many cases, technical communication programs already offer courses that teach students to be more creative. They just have not claimed doing so. And while "teaching creativity" may have historically seemed an abstract concept—particularly in regards to technical communication curricula—a redefinition of the field is taking place that is much more tolerant of such an ideology.

Perhaps because of the traditional epithet given to the field, "technical writing" has been often perceived as a discipline merely consisting of *writing, technically*. In other words, technical writing—in its necessary capacity to inform, elucidate, and instruct—has been thought of as needing to be stripped of all rhetorically-biased and descriptive language, the idea being that words, phrases, paragraphs, and entire documents (if constructed properly) could be simply understood by nearly anyone in precisely the same

manner. At its inception, a time when technical writing was considered a mere appendage to the field of engineering, this may have been true—at least somewhat. Language was intended (or at least perceived) to be capable of making even the most complex of ideas and processes to be understood by the mechanics, servicemen, engineers, or other users thought of to read it. This notion led to the perception (and later perpetuated stereotype of the field in general) that only very technically precise, non-rhetorical, nearly insipid language be used. Rhetoric was considered nonessential, even problematic, and creativity was a skill necessary for *other* fields, but certainly not for technical writing. Instruction reflected this assumption as teachers adhered to textbooks designed for "engineering English" courses, a term synonymous with technical writing until the 1950s (Connors 81). Eventually, however, a growing need for students to learn skills that teach them more than just, as Carolyn R. Miller has argued, the "windowpane theory" of writing emerged (17).

Technical communication has since grown and changed significantly both professionally and academically. Academically, programs across college campuses nationwide have found it necessary to incorporate rhetorical theory, new media, document design, and advanced composition courses into their curricula. This has, in essence, been a great paradigm shift in the field as educators and employers alike have realized the need for skills and knowledge that span the numerous rhetorically-affected situations in which technical communications take place. Thus, more recently, technical communication programs have begun to establish frameworks within their curricula that build literacy skills in multiple areas, including fundamental writing basics, rhetoric, social aptitude, technology, and ethics (cf. Cargile Cook "Layered"). Students are

learning about audience and persuasion, stakeholders, collaboration, online communications, and much more. The field is progressing toward a much richer understanding of how language is contextual and organic and *must* be altered when considering any professional document's purposes. Unknowingly, it seems, programs are teaching the creative process—teaching students to analyze rhetorically the context and present innovative solutions to problems.

Courses that are designed to expand a student's ability to confront a problem and offer creative solutions (where no one right answer exists) are especially conducive to teaching creativity. Because of the complex nature of technical communication occupations, many curricula have built courses centered around service-learning, project management, web and print design, multimedia composition, and others. These kinds of courses often present a complex problem to students where they individually and collaboratively develop solutions. In one such course, *English 5400: Interactive Media*—designed and taught by Dr. Kelli Cargile Cook over the entire 2005–2006 school year at Utah State University—students were told that the English department website was in need of an overhaul and that they would be required to develop a new one.

In a two-semester time period, Cargile Cook had students undergo a rigorous process to rebuild the site. Though under the direction of the instructor, students worked through the creative process as they designed their own processes for building a new site. First, through a delicate shaping of their dialectic, students critically observed and analyzed their surroundings—with whom they would be required to work, what the instructor/project manager would be requiring of them, what their individual and collaborative role would be, and how the client (USU English department) and users

would react to a new site. This was done particularly as students applied for positions on the team and critically analyzed their role within the team. Second, students researched (primarily through interviewing content developers and department faculty) the history of the site, how it reached its current status, and what decisions led it to that point. They built a solid understanding of the site's development, its successes, and its failures in time, realizing the decisions that led to the site's current status. It was discovered that the site, developed in what could be considered still the early years of the internet, was not well-mapped and not well-maintained. Any faculty member could edit the site and over several years, links had been added to the site. This impacted navigation and also complicated the issue of who was and had been in charge of maintaining the site. Third, students evaluated their resources—how much time they had (two semesters), the technologies they had available, and the number of students working on the project. Because of department politics, they were required to use a content management system (still in prototype stages) developed by an instructional technology staff member. This required them to evaluate their knowledge—their technical expertise, their experience with content management systems, and their research analysis skills. They also had to realize their available time outside of class in which they could work both individually and together. Fourth, students analyzed feasible options for designing, editing, and coding a new website. To do this, they actually created a variety of designs and developed and tested methods for editing and coding. At this point, they discovered the best possible option for putting the new site together. Finally, students worked in collaborative teams to propose and eventually develop the new department website. They

spent the next four months implementing the designs and processes they had come up with.

While this course is a complex example, many programs are implementing similar projects into their classrooms. The recognition that students gain valuable skills from this kind of learning project—learning that involves a cognitive awareness of surroundings and innovative solutions to problems—is obvious. Recognizing, though, that it is creativity that is being increased in students' ability to confront problems is valuable because students begin to grasp how to enhance their skills in multiple situations. Without an awareness of creativity or the creative process, students may find themselves approaching new tasks and new knowledge indiscriminately or haphazardly. Understanding creativity, however, allows the student to conceptualize what it is that he or she is applying across these multiple situations. This understanding ultimately allows students to approach learning and application of knowledge in a new and more productive way, and a way in which they can improve through practice of the creative process.

CHAPTER 3

THEORETICAL FRAMEWORK TO TEACH CREATIVITY

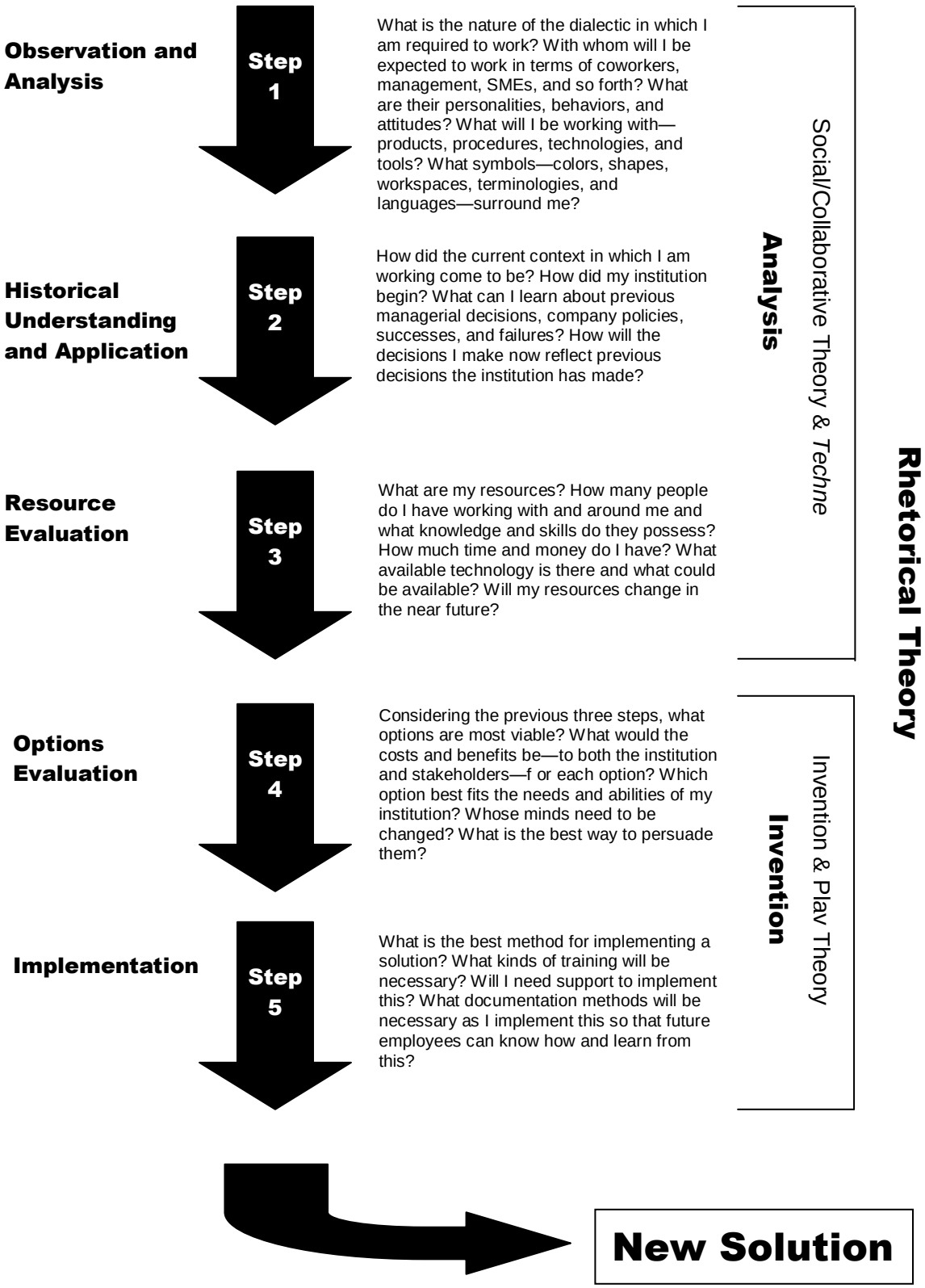
While many programs across the country do offer courses—and within those courses offer assignments—that teach students to be creative, *creativity* as a concept has been noticeably absent from most, if not all, technical communication curricula. In the previous chapter, I constructed a definition of creativity that we can apply to technical communication. I also framed a comprehensive *creative process* that presents a functional means of teaching and learning creativity and gives technical communication students agency to develop it. Ultimately, I reiterated the exigency of claiming creativity as a valuable component of our instruction, emphasizing that creativity is valued and required by many technical communication employers. This managerial expectation that technical communicators use creativity in their job responsibilities offers interesting pedagogical implications. Using the definition and creative process outlined in the previous chapter, the present chapter breaks down the five steps of the creative process into two teachable areas: *analysis* and *invention*. It further investigates the student heuristic in the creative process.

As a reminder, the definition I put forward for creativity is: "The ability to apply a complex understanding of a situated problem to an innovative solution." The creative process, which allows a student to apply creativity, is outlined in five steps: *observation and analysis*; *historical understanding and application*; *resource evaluation*; *options evaluation*; and *implementation*. I have categorized the first three of these as *analysis;* whereas, I have categorized the final two as *invention*. These two divisions of the creative

process can be approached pedagogically by implementing several widely recognized theories into technical communication instruction. This chapter introduces a basic pedagogical framework to teach analysis and invention and the five steps of the creative process.

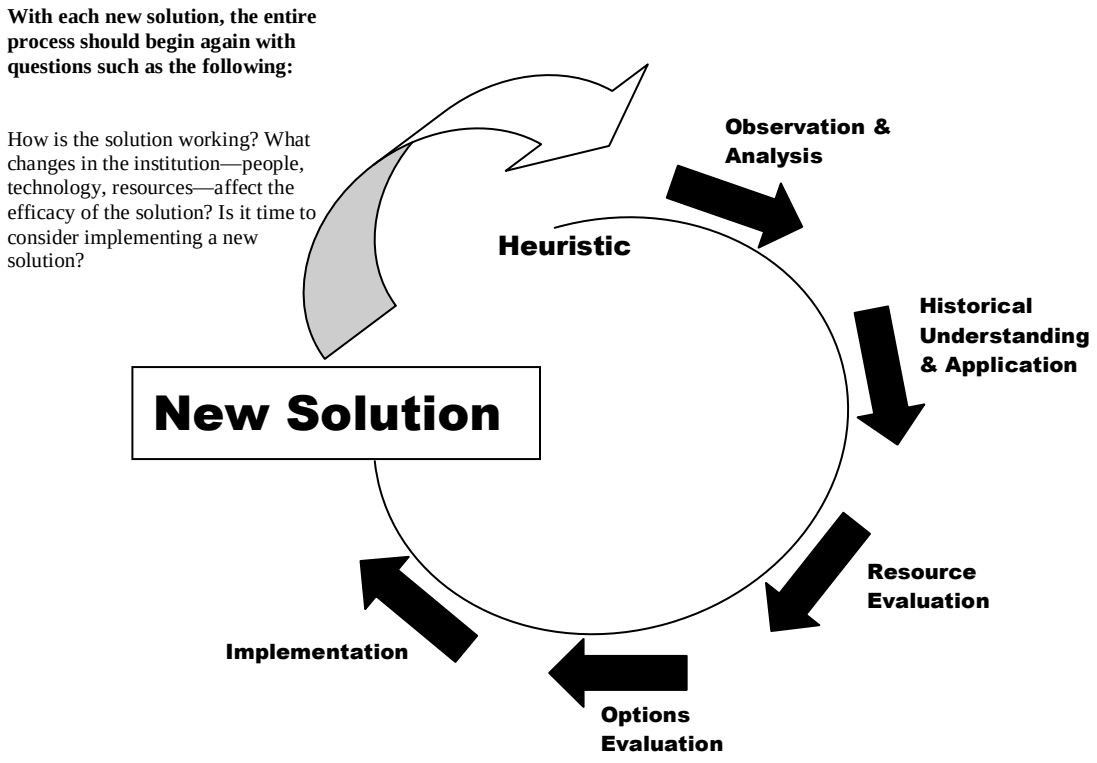
Because rhetorical theory has become a staple in technical communication curricula, it has a great deal of influence on both divisions of the creative process, and it serves as an umbrella theory that encompasses the teaching of creativity. I explore two major components of rhetorical theory, *techne* and *invention*, as possible means of teaching the steps of creative process in both analysis and invention. I also look at Social/Collaborative Theory and Play Theory, in order to more fully describe the creative process. Each of these theories is approached with the student in mind and the heuristic process he/she goes through while developing creativity in a real classroom environment. On the following page, **Figure 2** shows a visual representation of the creative process. On the left side of the image, the five steps are ordered from first to last. In the middle is a set of likely questions that the technical communicator would ask him or herself during the heuristic of the creative process. As each step is approached and when technical communicator discovers answers to these questions, he or she undergoes a learning experience where metanoetic and meaning-making moments happen as mentioned in the previous chapter. On the right side of the image, I have established the two divisions of the creative process—*analysis* and *invention*—and given suggested theories that relate to the teaching of each.

Figure 2: The Creative Process and Heuristic Evaluation



While **Figure 1** does not represent it, I should point out that I see the creative process as iterative or cyclical. In other words, after a new solution is developed and implemented, in most cases, it would be a good idea to start back at the beginning and observe, study, and evaluate the shifted context created by the implemented solution. As time progresses, the institution will change, people and technology will change, and the context of the solution will change, thus requiring the technical communicator to be constantly exercising creative thinking to be consistently effective (see **Figure 3** below).

Figure 3: Iterative Nature of Creative Process



I have organized this chapter by first explaining the differences between analysis and invention to give better context to the theories applied to the process. Second, I

briefly explain rhetorical theory and its overarching influence on technical communication. Next, I briefly describe a common assignment given to introductory technical communication students. I then use this assignment to walk through the five steps of the creative process and explain the student's heuristic process. After each division of the creative process, I outline the theories that could apply to each step and be considered as we create lessons and assignments to teach creativity.

Analysis

Pedagogically speaking, teaching analysis means preparing students to view components of the world—histories, theories, arguments, policies, processes, and so forth—in a more insightful way than previously considered. Analysis could be rooted in what has been determined "critical pedagogy," where Ann George has noted the main goal is "to enable students to envision alternatives, to inspire them to assume the responsibility for collectively recreating society" (97). Analysis itself is a skill, one bettered through practice and perhaps never perfected. It is the basis, though, for awareness, agency, and action within a person because it allows them to understand their roles, objectives, and outcomes in a larger context.

The first three steps of the creative process fall under the larger term *analysis* because they involve the interpretation and understanding of contexts and roles. Two of the most common theories that educators and theorists have debated in relation to analysis are rhetorical theory (and more specifically addressed in this chapter, *techne*) and social-constructivist or collaborative theory—rhetorical theory because it "take[s] into account the effect of context on meaning, and acknowledge[s] that the interaction of

author and reader always occurs in specific circumstances, and that those circumstances are constantly undergoing change" (Covino 48); social-constructivist/ collaborative theory because it helps "students cross boundaries of culture, gender, politics, and ways of knowing in order to construct knowledge which helps them participate in the social consciousness of humanity" (St. Pierre Hirtle 92). Each of these theories is rooted in the idea that meaning is contextual and organic and is understood through individual analysis and social construction.

Invention

Teaching invention builds on the concepts of analysis by applying contextual understanding and meaning of situations to build, or invent, new ideas and solutions. Invention reaches beyond merely conceptualizing ideas and actually puts them into action. A technical communicator, in other words, demonstrates creativity only *after* he or she has established an understanding of situation through thorough observation, analysis, research, and evaluation. The technical communicator's ability to be creative starts with the establishment of previous knowledge then builds new knowledge based on the old, ultimately enacting new knowledge. Two modern theories, play theory and rhetorical invention, have the potential to open classroom environments to creativity because they offer exploration that gives agency to the learner to develop and implement his or her ideas through practice.

Rhetorical Theory

Rhetorical theory, a common theoretical basis for many technical communication programs, is fundamental to the development of creativity because it demarcates the very

essence of meaning-making. A technical communicator's comprehension of rhetoric and an instructor's ability to teach rhetorical understanding, analysis, and decision-making develop analytical skills useful across all five of the steps of the creative process. William A. Covino and David A. Jolliffe have noted various definitions of rhetoric as "the study and practice of shaping content" (4); "a primarily verbal, situationally contingent, epistemic art that is both philosophical and practical and gives rise to potentially active texts" (5); and an "explor[ation of] ways of knowing and defining a subject" (6). As a philosophical art, they note that "rhetoric guides rhetors to think and observe deeply—intuitively, systematically, and empirically" (7).

Aristotle's complicated understanding of rhetoric reaches much further than what he deemed as its function: "not [simply] to persuade but to see the available means of persuasion in each case" (Aristotle qtd. by Covino and Jolliffe 5). His understanding has built a more than two millennia old conversation debate on topics such as *dialectic*, *kairos*, *ethos*, *pathos*, *logos*, *topoi*, and others. Its value, though, lies in its comprehensive understanding of communication, human interaction, and the ability to comprehend the complexities of situations. Kenneth Burke stated:

> Put several voices together, with each voicing its own special assertion, let them act upon one another in cooperative competition, and you get a dialectic that, properly developed, can lead to the views transcending the limitations of each. (Burke 202)

This statement, along with the other definitions and topics associated with rhetoric, helps technical communicators to see their workplace and classrooms as dialectical spaces, or places where the juxtaposition or interaction of conflicting ideas play out in real time. Rhetorical analysis and observation permit technical communicators to comprehend

communication stakeholders and their needs; persuasion and communication methods including author credibility (*ethos*), emotional and behavioral tactics (*pathos*), and logical appeal (*logos*); ethical dilemmas in communications; and personality and political conflicts that may exist in an institution.

Rhetoric in general, though much too complicated to address fully in this thesis, covers a spectrum of topics associated with the human meaning-making process. Rhetorical theory is thus fundamental for the deconstruction of the technical communication dialectic, the understanding of the social, cultural, ethical, and physical considerations of a workplace environment, the analysis and contextualization of a problem, and the ability to begin applying this understanding to new solutions.

The Recommendation Report: A Heuristic Evaluation

At Utah State University (USU), one of the most common assignments given to introductory technical communication students (whether majoring in the subject or taking the course as an elective) is the recommendation report (please see **Appendix** for an example of an assignment description). For this assignment, students are put into groups of three to four and asked to find an organization or institution (client) and identify a communication problem that exists within the organization. They act as a third party consulting group hired to research potential organizational problems and offer solutions. Working collaboratively, they conduct primary and secondary research to discover the root of the communication problem and its potential future implications if it is not fixed. They then write a persuasive recommendation report to the client that outlines suggested recommendations and present those recommendations orally using presentation software

like PowerPoint. Though not as common in the courses at USU, this assignment could be taken one step further where students create documents that help solve the communication problem that currently exists. This assignment gives students practical experience that helps them understand the communication dialectic, build new knowledge based on the old, and implement solutions. As instructors, we can approach such an assignment with the creative process in mind, implementing course lesson plans that are grounded in the above mentioned theories. In the rest of this chapter, I demonstrate the heuristic and the five steps of the creative process as a means to approach such an assignment. After each division of the steps (1–3 and 4–5), I explicate the appropriate theories that apply.

Analysis: Steps 1, 2, and 3

Step 1: Observation and Analysis

To begin this assignment, students must first understand the dialectic in which they will be expected to work. The heuristic process begins as they conceptualize this complex dialectic. They are required to consider their immediate surroundings and fellow group members as well as primary, secondary, tertiary, and gatekeeper audiences. They must build a rapport with those with whom they will work and they will undoubtedly recognize personality differences and varied interests and levels and areas of expertise. They must assume responsibility and understand their role within this group. They will consider, in one way or another, the following questions:

- What is the nature of the dialectic in which I am required to work?
- With whom will I be expected to work in terms of coworkers, management, SMEs, and so forth? What are their personalities, behaviors, and attitudes?

- What is my role and what is the purpose of this project?
- Who will I be responsible to? How will that impact the way I work?
- What will I be working with—products, procedures, technologies, and tools?
- What symbols—colors, shapes, workspaces, terminologies, and languages—surround me?

These kinds of questions help them shape their understanding of not only the ultimate task at hand (to write a recommendation report, present findings, and create documents based on those findings), but to recognize *how* they will accomplish that task most effectively. A possible first lesson plan would have students write out answers to these questions to become more familiar with their own perceptions. This is the beginning of the meaning-making process and will ultimately lead to metanoetic experiences where students recognize opportunities for change and development. As students begin working on the assignment—organizing themselves, writing drafts, conducting research, interviewing their client—they practice using their available resources and develop more complex understandings of social politics, collaborative writing, rhetorical presentation, ethical decision-making, and others. This will ultimately allow them to understand the writing and technical communication they will be required to produce in a much richer context.

Step 2: Historical Understanding and Application

Next, students will be required to place themselves in both the context of the academic assignment and within the organization for which they are conducting the research. Because the best creative solutions are built on previous knowledge, students will need to be aware of at least two important historical implications that will affect the way the project works out: 1) the previous group projects they have personally worked in,

realizing the successes, struggles, and failures, and processes they went through, and 2) the historical decisions and processes the institution they are working with underwent that led them to this current communication problem. Some of the questions they will likely need to consider are the following:

- Who have I worked with in groups in the past and on what types of projects? What can I learn about the way we worked through the project?
- How did the current context in which I am working—both my group and my client's—come to be?
- What historical information about the client and this particular problem can I make available to my group?
- What can we learn about previous managerial decisions, company policies, successes, and failures?
- How will the decisions we make now reflect previous decisions the client has implemented?

Understanding the context is inextricably connected to the history of the situation. As students develop solutions within their own group projects, and as they consider new solutions for the institution, they must contextualize both the rhetorical and social situations in which they work. By understanding the past, they can prepare and make predictions for the future. They can apply traditional, successful methodologies and improve them in areas where history has shown problems, discouragement, and failure.

Step 3: Resource Evaluation

After students have come to recognize the dialectical system in which they will be working and how history plays an important part of the shaping of that dialectic, they will need to evaluate the resources with which they will be able to work. In a group project such as this, and when working with a client, they will be required to consider several factors in regards to the assignment itself and to the client's needs and availability. Some of these factors include the amount time they will have to complete the project, what

knowledge they have of the industry and of writing recommendation reports, what technology will be available and required to write the report, present it, and create new communication documents, and what costs, if any, will be associated with the assignment and the proposed solutions to institution. Some of the questions they will likely need to consider include the following:

- What are my available resources for the completion of this assignment and what resources are available to my client?
- What skills do I already possess? How many people do I have working with me and around me and what knowledge and skills do they possess?
- How much time and money do I have for this project and how much time and money does my client have to implement a new solution?
- What available technology is there and what could be available?
- Will mine or my client's resources change in the near future?

The evaluation of resources is a necessary part of developing creative solutions for the client because it strengthens the students' ability to implement something feasible, something possible considering the restraints of the institutional and personnel-related resources—not simply something whimsical or hypothetical, a "good idea" that is too difficult to come to fruition. It considers the previous two steps of analysis, paving the way for well-constructed solutions to be considered.

Analysis: Pedagogical Considerations

As mentioned earlier, rhetorical theory serves as an obvious theory to apply to the teaching of these first three steps of the creative process. Rhetorical analysis is foundational to the understanding of the dialectic and of situated and contextual problem solving. *Techne*, a topic that is currently undergoing thorough research in the field of technical communication, is a very applicable part of rhetoric that delves into the way in which students comprehend and participate in communication. Social and collaborative

theories equally provide opportunities for students to make meaning out their environment by socially constructing knowledge and situation. The following pages explore in more detail the relationship of these theories with the student heuristic and creative process.

Techne

Techne deals directly with the communicator's meaning-making process as it is a methodology of using the tools that a communicator is given to creatively produce a desired outcome. These tools could be a number of things, including technology, other people, and training or instruction. Understanding how to implement *techne* as a part of our pedagogies has very useful application to the analysis involved in the first three steps. *Techne* is the artistic, creative approach to using modes of communication and persuasion. It is the way in which the communication is being done, not the communication itself that matters. Ryan Moeller and Ken McAllister, in their article "Playing With Techne: A Propaedeutic for Technical Communication," discuss the dynamics of *techne* as a valuable way (for students to prepare) to become technical communicators. Often, when technical communication students are prepared for the workplace only in terms of the documents they may have to produce and the protocols they will have to follow, they miss the most important steps in becoming effective. *Techne* builds on knowledge of the processes and scientific methods so often associated with technical communication and offers students experiential praxis that artistically and mentally "plays" and is flexible with knowledge, ideologies, and functions (185 – 206).

Moeller and McAllister make this point clear as they cite Jack Bushnell—who was taught differently than the “typical” technical communicator. He was taught to be innovative, creative, and forward-thinking. He was, in other words, taught to approach technical communication with the artistic, humanistic perspective. Bushnell stated:

> I was taught to shape knowledge, not simply pass it on in a clear, organized manner. And what I'd been taught was what made me distinctive from the majority of my co-workers, persuasive in print and in the verbal arena of the conference room, sometimes downright impressive and, yes, ultimately useful in the non-academic workplace. I had not been trained to follow an efficiency model or to anticipate what "bosses want"; instead, I had been taught to think and write in a way that would make my ideas impossible to ignore and maybe even impossible to resist. (185)

This “atypical” approach to learning how to be an effective communicator allowed Bushnell to act within his role of technical communicator—understanding his goals, responsibilities, contexts, audiences, resources, and political domains in which he was asked to write.

Etymologically, the term *techne* has a foundational connection to technical communication as it is the root of English terms such as technical, technique, and technology. “Technique,” a term often associated with processes and abilities, underscores a critical part of many technical communicator’s job responsibilities—applying skills to new processes. Technique involves the conscious awareness of surroundings in order to apply knowledge and application. As Byron Hawk has noted in his article “Toward a Post-*Techne*—Or Inventing Pedagogies for Professional Writing,”

> Technique is both a rational, conscious capacity to produce and an intuitive, unconscious ability to make, both of which are fundamental to *techne*. This dual conception of technique moves *techne* away from a reductive, generic, a-contextual conception of the technical toward a sense that technique operates through human bodies in relation to all other bodies (animate and inanimate) in larger, more complex contexts. (372)

Incorporated into our rhetorical pedagogies, *techne* forces students to confront the complicated situations they can be expected to face in the workplace. Hawk continues by saying, "An…understanding of *techne* would mean that teachers accept the ecological and ambient nature of rhetorical situations and begin to develop techniques for simultaneously enacting and operating in these complex, evolving contexts" (379). Key to this statement are the words *enacting* and *operating*, action-oriented verbs that give agency to the technical communicator *while* he or she is analyzing the "complex, evolving texts."

Techne, in other words, allows a student to be actively engaged in the process of rhetorically analyzing the situation and context they find themselves in and helps the student to contextualize creatively and apply components of the observed situation to the communication process. Creating assignments that teach rhetoric would place the student in various contexts or rhetorical situations. He or she could be asked to redesign a website for three different stakeholders—the client, the consumer, and the instructor. Given little instruction as to how to do this, students can apply rhetorical situations to their websites and artistically create new ones. The new sites are based on rhetorical observation and designed through heuristic praxis. Practice of this sort will prepare students as they begin to work with clients on their communication problems.

Social Constructivism and Collaboration

Social constructivism is grounded in the idea that learning is constructed primarily within social contexts. Collaborative theory claims that "Students who work together learn more and retain more" (Howard 55). Social constructivism and

collaboration build knowledge through social interaction and the exchange of ideas. While learning is often considered heuristic and idiosyncratic, rarely can the construction of knowledge occur without the influence of context shaped by other people. Social constructivism and collaboration re-emphasize a student's ability to engender creative skills because they, along with rhetorical theory and *techne*, underscore the methods in which humans construct their own knowledge through observation and analysis.

The idea that students gain valuable experience working with others isn't new and the realization that employers expect strong social and teamwork skills is overtly apparent. **Figure 1** demonstrates that one in seven of the attributes employers named was related to social/teamwork skills. Kelli Cargile Cook has observed in a widely accepted article on pedagogical approaches to technical communication:

> [Technical communicators] should be able to identify and work within organizational settings (and sometimes work to reform these settings). They should be able to communicate a purpose or intention for their collaboration with others, and they should be able to handle conflict within groups positively and constructively. In addition, they should recognize their discourse communities' social conventions and expectations for document design and graphical display of information. ("Articulating" par. 5)

Implementing socialization and collaboration into our pedagogies has greater value, however, than simply being able to teach good people skills. Considering the recommendation report assignment, and referring to the heuristic that takes place during the first three steps of the creative process (the analysis steps), social and collaborative assignments offer opportunity to understand the behaviors, personalities, and attributes of people they have worked with in the past, who they are currently working with, and those with whom they will be expected to work (such as SMEs, managers, clients, and so forth). It also presents an opportunity to assume responsibility within social contexts and

to comprehend more effectively the complicated, socially-constructed dialectal systems in which they will work. One of the first and most important parts of analysis that students will face in an assignment like the recommendation report will be to recognize each others' strengths and weakness, power struggles, conflicts of interest, and the rhetorical and persuasive ways in which they will need to communicate with those around them.

Working with people has great influence on the student's ability to ultimately make good rhetorical decisions, making them better writers and communicators in general. Understanding the influence of language, audience, tone, diction, and sources all exert knowledge of the effects other people have in not only our communications but in intrinsic meaning-making or metanoetic experiences, as noted in the previous chapter. Rebecca Moore Howard has noted:

> active readers function as collaborative partners; the writer's sense of anticipated audience constitutes a form of collaboration; the community in which the act of writing takes place or toward which it is aimed contributes constraining (and enabling) conventions such as word choice, tone, organization; and sources that the writer has read exert their influence. (55)

Rarely would a communicative act occur that did not involve some interaction—either directly or indirectly—with another person. To effectively engage technical communication students in the writing they will certainly be asked to produce—particularly as we introduce them to the analytical steps in the creative process—it seems necessary to frame learning in social contexts.

Kenneth Bruffee, who laid the groundwork for understanding the necessity of collaboration in composition and writing classrooms, argues that collaborative learning provides conversations in socially-constructed communities. These conversations allow

for practice and comprehension of workplace situations: "Students learn the 'skill and partnership' of re-externalized conversation…not only in a community that fosters the kind of conversation college teachers value most, but also in a community that approximates the one most students must eventually write for in everyday life, in business, in government, and the professions" (642). Collaborative learning, then, is the vehicle to developing discourse communities and environments capable of teaching students when and how to reshape their behaviors and actions depending on context. During the recommendation report project, students will likely be faced with moments in which they will need to re-approach a situation because of how others reacted. In the process of researching the client's communication problem, for example, students may discover that the survey they were planning to conduct with employees does not set well with the manager of the organization. Such a case would require students to reconsider the way in which they approach the research of the problem. A crucial component of analysis as it applies to the first three steps of the creative process involves comprehension and adaptability to socially-constructed environments.

Anne Ruggles Gere, in her book *Writing Groups: History, Theory, and Implications*, notes the importance of collaboration for communicators.

> Knowledge conceived as socially constructed or generated validates the "learning" part of collaborative learning because it assumes that the interactions of collaboration can lead to new knowledge or learning. A fixed and hierarchical view of knowledge, in contrast, assumes that learning can occur only when a designated "knower" imparts wisdom to these less well informed. (72–73)

Because culture plays such a vital role in technical communication environments, effective communicators should be able to analyze the behaviors, personalities, attitudes, experiences, and backgrounds of those around them critically. This analysis leads to a

broader understanding of context, communication needs, and solutions. The knowledge a communicator acquires through social experience, participation, and analysis ultimately leads to decision-making based on not just on individualistic, solitary discernment, but rather socially and culturally constructed awareness that has broader application and effectiveness. This knowledge also allows the communicator to understand the context in which he or she uses the tools and resources around him or her. Brown, Collins, and Duguid have made the claim that knowledge is situated and "developed through activity" and continue to explain how this situated knowledge influences the ability to use the tools in a workplace environment:

> People who use tools actively rather than just acquire them…build an increasingly rich, implicit understanding of the world in which they use the tools and of the tools themselves. The understanding, both of the world and of the tool, continually changes as a result of their interaction. …The culture and the use of a tool act together to determine the way that practitioners see the world; and the way the world appeals to them determines the culture's understanding of the world and of the tools. Unfortunately, students are too often asked to use the tools of a discipline without being able to adopt its culture. To learn to use tools as practitioners use them a student, like an apprentice, must enter the community and its culture. (33)

While it may not be possible to duplicate entirely a culture in which a student may someday work down to the last detail (each and every culture will be decidedly different from one another), the creation of various cultures in classroom environments offers a learning method that teaches adaptability. Students who are exposed to environments where social interaction and analysis is constant will learn to adapt to new social environments as they become familiar with the idiosyncrasies of each. Brown, Collins, and Duguid continue with this idea:

> Given the chance to observe and practice *in situ* the behavior of members of a culture, people pick up the relevant jargon, imitate behavior, and gradually start to

> act in accordance with is norms. These cultural practices are often recondite and extremely complex. Nevertheless, given the opportunity to observe and practice them, people adopt them with great success. Students, for instance, can quickly get an implicit sense of what is suitable diction, what makes a relevant question, what is legitimate or illegitimate behavior in a particular activity. (34)

Socialization and collaboration are valuable to understanding how to be creative because they open perspectives into new worldviews that influence the decision-making and implementation processes. Students who consistently work with other people will be more aware of the sociopolitical surroundings they will be faced with in the workplace. Projects like the recommendation report well-suit a social pedagogy that prepares students to make wiser decisions and create better solutions because it familiarizes them with socially constructed dialectics. Such assignments incur difficult time constraints and the challenges of dividing responsibility, delegating tasks, sharing ideas, and accepting and giving criticism. When students are actively engaged in new and unfamiliar environments that are shaped by the people and tasks within them, they will have repeated opportunity for social analysis, observation, historical understanding, and resource evaluation.

Both *techne* and social/collaborative theories emphasize the construction of knowledge as it applies rhetorically to complicated dialectical systems. As students heuristically approach the collaborative group project with an awareness of the creative process, and as instructors guide them through the learning process, they will be better prepared to be creative—to implement effective new solutions—because they will comprehend the situations they find themselves in. Instructors who approach this collaborative assignment by preparing *techne*- and socially-driven lessons will help teach their students to be more creative more of the time.

Invention: Steps 4 & 5

Step 4: Options Evaluation

Once students have taken the initial steps of framing the situation and understanding the rhetorical and political nuances that exist within their group project, they will be ready to evaluate available options for their assignment. Rarely will any given problem have only one available solution. Thus, it is imperative that students take into consideration every constituent of the dialectic and begin framing possible solutions. As they research their client and come to understand the nature of the communication problem (and how it arrived at that point), and as they realize their own resources and the resources of their client, they will be able to make more sound judgments about the best solution(s). Some of the questions they will likely need to consider include the following:

- Considering the previous three steps, what options are most viable in terms of this course project and for the client?
- What would the costs and benefits be—both for the assignment and client—for each option? Will this solution really beneficial? Why?
- Which option best fits the needs of the client and abilities of my group?
- Is our group capable of presenting this option persuasively?
- Whose minds need to be changed? Who are our audiences and what is the best way to persuade them?

Creativity begins to really take shape in this fourth step as the preliminary observations and analyses mold into new ideas based on the acquired knowledge in the first three steps. It is an essential part of the creative process to realize that multiple options are available and creative solutions must be thoroughly inspected before implementing.

Step 5: Implementation

Of course, implementation is the part most often thought of as the creative moment or when creativity is actually being applied. It is, however, only most effective

and most creative if it considers the previous four steps. Two kinds of implementation take place in this assignment. For their grade, students implement a plan to write, edit, and revise their recommendation reports and oral presentations. Also, when students construct the documents that help solve the communication problem for their client, they will—for all intents and purposes—be implementing the solution (though it may or may not be used by the client). During the implementation process, students should be asked to address the following questions:

- What is the best method for implementing a solution in our group and for the client?
- What kinds of training will be necessary to not only write an effective recommendation report and give a persuasive presentation, but also to the employees and management of our client's institution?
- Will I need support to implement this? From whom?
- What documentation methods will be necessary as I implement this so that future employees can know how and learn from this?
- How long will this solution last? When should I consider reviewing the solution to possibly create a new one?

Implementation is where creativity becomes visible to the outside observer. It is where something has been created and begins to take effect. It is important to realize, as noted in **Figure 3** at the beginning of this chapter, that this is also where the student (or technical communicator) must realize the likelihood that this creative solution is not permanent and that the creative process is an iterative one. All institutions experience change in personnel, technological advancements, financial security, and their place and purpose in a changing world. Rarely will any solution be a final fix, thus an awareness of the revisions and restructures that will take place after implementation is imperative.

Invention: Pedagogical Considerations

Steps 4 and 5, the invention steps of the creative process, involve an understanding and physical implementation of solutions. Thus for students to effectively participate in the learning of creativity, they must be given opportunities to practice implementation in a safe environment. This practice gives agency to the student to create options and solutions and to witness the consequences of these solutions firsthand. While it can seem like a difficult task for instructors to help students practice developing solutions without having serious consequences (like receiving a poor grade or offending an actual client), lesson plans can be designed to put students at the forefront of implementation by assigning activities that don't have to be related to the large group project, but that simply give opportunities for students to contextualize problems and develop solutions. Rhetorical invention and the inclusion of play in the classroom are viable pedagogical options for teachers to consider implementing because they require "doing," thus giving agency to the student—a step beyond simply learning about or rhetorically analyzing.

Rhetorical Invention

Understanding invention in technical communication is often the difference between managing information and developing information. A very crucial part of a technical communicator's responsibilities includes receiving, organizing, and managing information from several different sources. While managing information is important it is not the *only* responsibility; and it is often secondary to a much more important function of technical communication—inventing (or developing) new information. Invention plays a critical role in the creative process as it gives agency to a student to build upon previous

and researched knowledge in order to apply new knowledge. Covino and Jolliffe note the contemporary attention being placed on rhetorical invention and its relevance to creativity:

> With the renewed interest in…human creativity that emerged in the 1960s and 1970s, the importance of invention as an epistemological and rhetorical process has been revitalized. Further, the centrality of invention informs postmodern views of knowledge itself as an inventional process subject to cultural, psychological, and ideological contingencies. (61)

The final two steps of the creative process deal specifically with this—evaluating options (based on previously constructed meaning of situation, history, and resources) and implementing at least one of those options.

Invention offers a richer understanding of how technical communicators function in their job tasks, realizing that there are far more complicated responsibilities than simply regurgitating information. The previous chapter discussed the dialectic of the technical communication occupation—one inextricably shaped by culture, social interaction, public policy, technology, and other factors. Those familiar with the occupation are aware that even the simplest of tasks requires a complicated decision-making process in order to complete the task. I came to recognize this while working with foreign user's manuals at an exercise equipment plant. When asked to "simply" update the text because a part had changed, I soon found myself working with several different departments and people—including engineers, translators, quality assurance, desktop publishers, line drawing artists, and even the legal department—to make sure the change met all institutional standards. Communicating with so many people, though, often meant a loss of time which ultimately led to extended production dates, increased printing costs, angry management, and upset customers. I was suddenly required to make

ethical decisions, considering who my stakeholders were and what was most important—time, money, immediate management appeasement, future legal ramifications, customer satisfaction, or even customer safety. I was required to make my decision quickly based on previous knowledge of the institution, management, customers, and my own technical writing process.

Understanding this complicated nature of decision-making, Susan Harkness Regli poses the very interesting question: "Do we *know* or do we *knowledge*" (33)? This question establishes an inquiry into the actual verb tense of a word commonly referred to as a noun. Technical communicators *knowledge* as they develop, or invent, meaning from previously constructed information. Knowledge becomes a rhetorical action. Consider her example of a software engineer working with a technical writer:

> Using the most limited model of technical writing, one might say that the software engineer creates a "piece" of knowledge as a commodity and gives it to the technical writer, who then "packages" it in words to be shipped along with the software. In a richer model, the writer is a rhetor who treats knowledge as an activity: the rhetor's expertise lies in knowing how to "perform" knowledge in a communal, dialectical context—how to orchestrate the conversation of a team of specialists working to invent, develop, produce, and test software products. (34)

This richer notion of the written aspect of technical communication clearly conceptualizes the invention process that takes place in well-conceived and executed communication projects. Students taught through the lens of rhetorical invention will be more capable to, as technical rhetors, produce knowledge that isn't only functional in terms of being well-written, but useful as it is situated and shaped by context.

Applying rhetorical invention to a classroom activity could take shape by asking students to design a tutorial for a software application. The audience at stake would be students unfamiliar with this program but who may need it in the future. Students would

research and practice using the software over and over. They would familiarize themselves with the students who may be using this software and approach the new document with language and tone that best fits that audience's needs. They manage and organize the information they acquire and invent new, applicable knowledge to an old problem. Such an activity would help prepare students as they work through a project like the recommendation report. This activity is safe because the stakeholders are fictional. It prepares them—through practice—for creating good solutions to their client's communication problem.

Play

Play theory offers valuable insight to the development of creativity in technical communicators because play is, according to play theorists such as Johan Huizinga, Roger Caillois, and Brian Sutton-Smith, a humanistic phenomenon that "interpolates itself as a temporary activity satisfying in itself…. [It is] an intermezzo, an interlude in our daily lives" (Huizinga 9). It is something all humans participate in and has historically been considered a diversion, something relaxing, fun, and intrinsically valuable. According to Caillois, it has four major components: competition, chance, mimicry, and vertigo (14). Because play is such a natural part of human culture and existence, and because incorporating games and exercises of competition, chance, and mimicry are very feasible to incorporate into our lesson plans, play theory provides a great potential for practicing and developing strengths in the final two steps of the creative process: *options evaluation* and *implementation*.

Since the groundbreaking work of Johan Huizinga, play theorists have tried to establish a definition of play and its influence and purpose on both the individual and the society. Like creativity, play is a term that can be defined in many ways for multiple purposes. Though often considered the opposite of work, play is a much more multifaceted concept. Karen Stagnitti notes in her article, "Understanding Play: The Implications for Play Assessment" that although the definitions of play vary and have been blurred throughout the last century, a consensus is emerging. Paraphrasing many play recent scholars (Stewart *et al.* 1991; Bracegirdle, 1992; Goodman, 1994; Bundy, 1997; Parham & Primeau, 1997), she concludes that play:

- Is more internally than externally motivated.
- Transcends reality as well as reflects reality.
- Is controlled by the player.
- Involves more attention to process than product.
- Is safe.
- Is usually fun, unpredictable, pleasurable.
- Is spontaneous and involves non-obligatory active engagement. (Stagnitti 5)

Breaking down this definition of play, will illuminate the pedagogical implications for technical communicators. While play is generally internally motivated, well-constructed lesson plans would allow the student to engage in play to the extent that they gain intrinsic satisfaction from participating in the class activities. And while play is often also considered a diversion and pulls away from "the real world," the fact that play reflects reality is important. It is also important to recognize that the above definition states that play is *usually* fun, but as Ken McAllister argues when discussing games (a term almost always associated with play), play is not always fun. Play does present a safe way to experience reality, to learn through trial and error, and to control environments through player decision-making (McAllister 37–38). Chris Crawford, legendary computer game

developer turned critic has even noted: “the fundamental motivation for all game playing is to learn” (13).

Consider a classroom activity where students are divided into groups, given a game they are unfamiliar with and, without the original instructions, asked to develop new instructions to the game and then have their peers play it based on their new instructions. The original brainstorming and writing up of new instructions may not seem very playful. However, when students exchange games and instructions and begin to play the new game, they learn valuable lessons about user-centered design, usability, rhetorical and ethical decisions about language, and social interaction to construct new meaning. They also develop problem-solving skills as they work to make sense out of an unfamiliar game. Activities do not arguably need to be this focused on technical communication, however, to gain valuable experience. Students who are asked, for example, to engage in playing a computer game—with or without having been given instructions—can enter a virtual world where they become involved in making decisions. Though this is a simulated experience—much unlike anything they will ever experience in their workplace—they are practicing how to be creative through the decision-making process and implementation of solutions. With play, students are allowed to quickly move from the first three steps of the creative process (strategically analyzing and observing their surroundings), to beginning to make educated decisions about their resources in order to execute a viable solution. It seems apparent in such an exercise, that the more complex the game or play activity, the more complicated the decision-making process becomes, thus making for a more valuable learning experience.

Classroom activities that have a "feel" of diversion and play, activities that are "free, separate, uncertain, controlled, and fictive," as Caillois has argued, certainly have the potential to engage and instruct students. The ability play has, though, to teach skills such as problem-solving and meaning-making and learning (as we see in contemporary video games and interactive electronic media) is important. Ken McAllister notes:

> Games are designed to appeal to children, youth, and adults of all ages, males and females, who are from many parts of the world. …There are games that appeal to players' desires to hunt, solve, maneuver, and plan; the scenarios in which these desires are met are sometimes lifelike and sometimes fantastic. Despite all of these variations, however, one fundamental concept ties them together: play. …And play, it is important to remember, is also always instructive. (68)

As students engage in organized play, they can be taught creative skills such as innovation, adaptation, application, and design. They are not only faced with decision-making opportunities, but they are offered very real chances to implement solutions. As a part of developing creative abilities, students faced with play in the classroom will experience safe environments where they can observe their options and the implement those options. Consequences, though certainly not severe and obviously un-lifelike, will be administered and will ultimately lead to learning moments.

Conclusion

I recognize that the kinds of assignments and theories discussed in this chapter aren't new to technical communication. My point though, is that recognizing them as a part of the creative process *is* new. Creativity itself is a new concept to the field that is often being implemented but not recognized. As we continue to progress in our understandings of the field, I argue that we must consider the value of approaching these courses and assignments with a creative mindset. Instructors and students who recognize

how to develop the non-writing skills required by managers will be more effective at teaching and learning those skills. Robin Williams, author of *The Non-Designer's Design Book,* makes an analogy about this. She refers to a childhood experience when she learned in school what a Joshua tree was. It was a very odd tree, she thought, one she had never seen or heard of. On her way home from school that day, she soon realized that there was one in the front yard of her parent's California home as well as one in nearly every yard on her street. She later made the realization that once we understand something, we have control over it (11). This example may seem simplistic, but the concept is important. As instructors of technical communication, I argue that recognizing a definition of creativity and the ability to teach it through the creative process I outlined in this thesis gives us power over an area of technical communication that is still greatly under-explored: the creative skills that managers expect technical communicators to possess. Once we have power over this idea, we can better implement it into our pedagogies, lesson plans, courses, and curricula.

Understanding what creativity means and how to develop it is only the beginning step to effectively implementing it into our classrooms and our curricula. I have stated earlier that these four theories probably merely scratch the surface of the pedagogical potential embodied in the creative process. While I argue these theories are important and effective means of teaching creativity, there is much more we can learn about how to teach creativity and what methods work best for what kinds of classes, programs, locations, and student demographics. It is certainly possible, and probably best to break down the various steps of the creative process and teach them individually and then in relation to each other. Teaching analysis and invention as discrete components of the

creative process may especially help instructors to teach and students to comprehend and implement creativity. While they are certainly related and ultimately will go hand-in-hand, they are approached differently and thus will probably be taught differently.

CHAPTER 4

RECOMMENDATIONS FOR FURTHER RESEARCH

A question that is certainly raised by the idea of teaching creativity is the extent to which we teach it and how much we emphasize it to our students. I don't claim to have a perfect answer for this. I recognize creativity as a valuable *component* to technical communication curricula. Acknowledging that 75% of employers surveyed by Rainey, Turner, and Dayton ask for at least one skill related to creativity, I argue that creativity is not only valued but expected by technical communication employers and that it is imperative that instructors openly address it in the classroom. I recognize that pedagogical strategies vary from one instructor to the next and that course and program goals vary widely from one institution to the next. Whether programs decide to make creativity a guiding theme throughout their curricula or simply weave it into several courses, assignments, and classroom activities, I suggest that it become a very real part of the technical communication programs across the country. At this stage, it is important that we begin the conversation about creativity and explore in more detail what exactly creativity can and should mean for the field and how much employers do, in fact, value it.

This, of course, has many complex implications. As a recommendation, I suggest we continue to explore what creativity means as there are assuredly more nuances to the definition that I have failed to address. Creativity has numerous social and psychological connotations that must be explored to really understand how best to approach it. Understanding how to categorize skills that are related to creativity must also be explored in more depth. There is an obvious distinction and separation between the kinds of skills

employers are looking for—some are obviously related to computer hardware and software skills (knowing Java, HTML, or RoboHelp); some are unquestionably related to personality and behavior (honesty, forthrightness, or sense of humor); and some are no doubt associated with social skills (ability to interview, give and receive criticism, and work well in teams). But there also exists gray area between many skills that could be related to creativity but also associated with other areas. Further investigation into the skills labeled as creative in this thesis will need to be done to better understand which is more valued, which is more teachable, and which is more applicable to the job.

An interesting but important implication of creativity is its relation to behaviors and personalities. In my research, I came across studies that argued creative persons are more motivated and productive, action-oriented, energetic, attracted to complexity, intuitive, self-confident, and many others. Because this seems to be an under-explored area, I chose to merely introduce the idea in this thesis. However, realizing that there is a possible link between behavior skills and creativity raises more questions about its value and its greater effect on the efficacy of the technical communicator in the workplace. It also clearly delineates the possibility that even more than the 19% of skills employers are looking for could possibly be improved with strong awareness and practice of creativity and the creative process. Studies that were designed to discover the relationship between creative persons and their likelihood of being motivated, productive, action-oriented, intuitive, and others, could help build on the importance managers already place on creativity.

The idea of creativity being related to personality, though, begs a serious question that should also be explored: If creativity is connected to personality, and personality is

innate, is creativity also somewhat innate? If so, is it really possible for people to get better at being creative? While I argue that it is in this thesis, I certainly would value further research into the idea. To someone who argues against me on this claim, I would simply state that not all persons are innately "good" at math or chemistry and that they do not necessarily pick up on the larger context of the subject immediately. However, most are able to get better—even if in small degrees—through practice. It probably goes without saying that some will always be better at being creative than others, just as some are better at math or chemistry than others. The creative process is a means to instruct students *how* to be more creative. Some will pick up on it immediately and will be able to quickly apply effective creative solutions to problems. Others will need practice. As I said, though, research that explores students' ability to become more creative in time would be both fascinating and useful to the conversation and the field.

Pedagogical theories ought also to be explored in more depth as we learn how to apply the instruction of creativity in the classroom. This thesis only made enough space to briefly explore a few possible pedagogical theories to assist in the teaching of creativity. Each of these theories would be better represented with exploratory case studies that can examine the improvement of students' creative abilities over the course of a semester, or, possibly, over the course of their student tenure. Students could be given an array of assignments that are grounded in a theory such as play theory, for example, and be tested and interviewed about their abilities to analyze, problem-solve, and implement solutions. Or, over the duration of a course that emphasizes rhetorical analysis and invention, students could be queried and tested on their ability to recognize rhetorical and ethical implications *before* implementing decisions based on an

examination of the socio-political, culturally divergent situations in which they find themselves.

The defining of technical communication is a perpetual process, one that involves historical reflection and forward-thinking. As we progress toward a much richer discipline, I suggest we consider creativity to be (re)introduced into technical communication and its curricula. While this thesis is far from spelling out the *how* of implementing instruction that teaches students to be more creative, it presents a noticeable exigency to at least begin discussing creativity as a very real, valued, and teachable component to a technical communicator's educational experience and workplace expectations.

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APPENDIX

Collaborative Research Project: Recommendation Report

Collaborative Research Project

English 3080: Introduction to Technical Communication

Assignment description and rationale

Effective research underlies most successful technical communication in the workplace. As a professional, you will probably find, evaluate, and interpret primary and secondary sources—interviews, surveys, books, research and trade journals, magazines, and websites—to develop content for documents and presentations. To help you become an effective researcher, and to give you practice working on collaborative teams and producing informal and formal documents and presentations, you and a classmate will complete a research project that includes a two-page proposal and management plan, a five-page recommendation report, and a fifteen-minute oral presentation.

The focus of your research will be to solve a problem for a local client that requires a communication solution. Because you will work on an interdisciplinary team, it is suggested that you and your collaborator approach the client's problem from both of your disciplinary perspectives. For example, if you are a business major and your teammate majors in public speaking, you might research how to improve CAPSA's method of soliciting donations over the phone and recommend ways to redesign the organization's calling scripts. Or, if your team's majors are physical therapy and art, you might find a local physical therapist who needs help compiling and formatting resources for patients to use when exercising at home. You and your teammate could research print and online resources and recommend a document plan for the content and design of a website, brochure, manual, or instruction set.

Although you and your teammate will research alternatives to solving your client's problem, your recommendation report and oral presentation should identify a clear communication solution that will help the client make a practical decision or take a practical action.

Assignment values and due dates

Assignment	Point Value	Overall Value	Due Date
Proposal and Management Plan	100 pts. (Collaborative)	10% of Overall Grade	March 18
Recommendation Report	200 pts. (Collaborative)	20% of Overall Grade	April 8
Group Presentation	100 pts. (Collaborative)	10% of Overall Grade	April 8 – 15
Reflective Memo	50 pts. (Individual)	5% of Overall Grade	April 24
Total	**400 Points**	**45% of Overall Grade**	

Project requirements

Proposal and management plan

Often in the workplace, to proceed with a new idea or change from previous company procedures, permission is required. Thus for this assignment, you will first be required to write a proposal in which you request permission to move forward with the project. This proposal will be written in memo format and will be two pages in length.

Format and Design

- Two pages in length (1000 – 1500 words)
- Memo format
- 12-point font, 1-inch margins, serif font
- Single-spaced, double-spaced between paragraphs
- No indents for paragraphs
- Clearly labeled headings to separate information

Content

Using headings to separate information for the reader, include the following information in the body of the proposal:

- ***Client*** Give a brief explanation of who your client is, including information about what product they produce or service they provide; who their clientele include; the nature of their business and/or operations; the industry or field in which they operate; their location; and so forth.

- ***Communication Problem*** Let me know what problem the company faces that could be solved with a communication problem. To do this, you will need to contextualize the problem by discussing whom this problem affects, how it affects them, and what impact that has on your client. You will possibly want to discuss the history of the problem, how it reached this point, how severe it is, what the future looks like if a solution isn't reached. At this point, you won't have done your research, so you do not need to offer an actual solution to the problem. Just explain the nature of the problem, who it affects, how a solution would benefit the organization, etc.

- ***Research*** Propose a research plan in which you delineate the research questions have about this communication problem and the sources you plan to use to help you answer those questions and reach a viable solution. Let me know the people you plan to interview (if any), the kinds of sources you plan to look at (specific websites, journals, books, magazines, newspaper articles, etc.), and possibly the kinds of surveys you plan to conduct.

- ***Management Plan*** Let me know how you plan to accomplish the tasks involved in reaching a solution and drafting a report. Specify who will work on which part of the project, the target dates you plan to have various parts completed (interviews, research, drafts written, etc.), and how you will collaborate to accomplish each task. Also, describe your own backgrounds and give reasons why you are qualified to write a recommendation for this client.

Recommendation Report

Format and Design

- Five pages in length
- APA format, including title page
- References page on separate sheet of paper
- Serif font, 12-point, 1-inch margins
- Single-spaced, double-spaced between paragraphs
- No indents for paragraphs
- Clearly labeled headings to separate information

Content

Include the following information in your recommendation report:

- ***Introduction*** State the purpose of the report. Provide brief background information about your client and contextualize their communication problem. Give a brief statement about how your research solves the client's problem. Summarize your recommendations for solving the client's problem with a communication solution. Forecast the report's organization.

- ***Methods*** List the steps in your research process. Identify your primary and secondary sources and explain why/how they are useful and credible sources. Acknowledge the limitations of your research, if necessary.

- ***Research Findings*** Report the major results of your research. Use the results of your research to analyze possible communication solutions to your client's problem. Discuss all of your findings adequately. You will likely need to address the resources necessary to solve the problem that your research found. Use graphics to support your findings, if appropriate.

- ***Recommendations*** State your recommendations for solving the client's problem based on your research. List the goals or objectives for your communication solution and explain how this solution would best be accomplished. Explain the resources (time, money, technology, skills) needed to solve the communication problem. Possibly provide a cost/benefit analysis. Include a document plan that outlines the main features of the communication's content and design.

Oral presentation

During the last week of class, you will use PowerPoint to give a fifteen-minute oral presentation on your recommendation report. In your presentation, plan to briefly describe your client, the client's problem, and the methods you used to conduct your research. Then, discuss at least two of your major results and explain your recommendations for solving the client's problem based on your research. *You must participate in your team's presentation and attend your classmates' presentations to earn full credit for this assignment.*