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## Inventing Invention

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I grew up around invention and inventions. My father is an engineer who, for over forty years, worked in the area of refrigeration at major appliance companies before retiring from a small company that made thermostats for household electronics. Everything in his world is a “part” that, when put together with another “part,” might become something. Growing up, my friends and I used to call him “The Gadget Man.” He is a continual inventor, yet, at first glance, he appears to be much more a pack rat than a mad scientist. His garage has been stocked complete with strange items accumulated over a period of forty-eight years of marriage and raising a family: wires, tool handles, broken toys, thermometers, an ice bucket, lamp switches, an intercom system, the first microwave oven ever manufactured (an Amana Radarange), odd pieces of Plexiglas, sheet metal, wood, and screen, a cracked wooden bowl, an old trash compactor (the “compactor” went down and never came back up, preventing the trash drawer from ever opening again).

Surprisingly, the garage is quite neat, always space for two cars and room to get in and out of both the driver’s and passengers’ doors. In my opinion, the garage has never really been dirty or messy, so I wasn’t sure what he was doing when he claimed that he was “cleaning,” a process of taking everything out of its place and putting it back, or removing items saved in four baby food jars and relocating them to an old road salt bucket. All the while he makes a sort of whistling noise that isn’t quite a real whistle but that has enough tonal quality to it that the sound coming from his lips is recognizably songlike.

Well into my adult years, I learned that his ritual was more surveying than it was cleaning, a way of recalling what’s there and what’s where, of keeping in touch with what may or may not be of use at some time. It’s been an interesting process to watch over the years, especially when I realized that, as far as he is concerned, everything may be of use some time. He never throws anything

away. At times, he labels items or creates short directories, but his mental impression of the garage that is created and recreated with each “cleaning” is more true than anything he might record on paper. His mental text is an authentic, real representation of the artifacts stored in his garage.

Recently, it came to me that this surveying of the garage, oddly enough, has something to do with the way my father walks through a store. Like many of us, often he heads to a store because he needs something in particular, something very specific. List in hand, he gathers what he set out for, rarely deviating from his agenda. When his errand list is short, however, and he is not pressed for time, he adopts a different mode, less forced and driven, more relaxed and observing, yet all the while purposeful. His posture changes greatly, from literally leaning forward to read his list, moving directly toward the items he needs, to one which, at first glance, is a rather strange practice: he walks with one hand in his pocket jingling keys and change (a habit formed early in his career as an engineer—keeping his hand in a pocket was assurance that he wouldn’t “complete” an electrical current through his body), the other lightly touching and handling items as he walks down the aisles. Sometimes he looks at what he’s touching, sometimes not, always making that same whistling noise, the song of his garage.

Occasionally, during his perusal, something will bring him to stop—the texture or weight of something surprises him, a line of tools he has known for years changed the design of its grips, a small kitchen appliance for which he designed a thermostat has finally hit the market, someone has mistakenly mixed flat-head screws in the round-head screw bin. Usually, this cause for pause is momentary, and he moves on. Every so often, though, his contact with something—with his hand or his eyes or with any of his senses, for that matter—is more substantial, bringing together or connecting somehow various items collected in the garage. The mental register, a mental text of sorts, breaks down into fragmented items that begin to shift and reorder. These found bits, either abstract concepts or very physical “pieces,” connect with the garage and allow him to envision a process of creation. Sometimes this thinking through of problems and questions and steps, at least for the moment, remains nothing more than a process. However, on other occasions, his mental exercises result in inventions—some rather odd, some rather mundane—that usually solve specific problems that have come up in the house. (And depending on the invention at hand, sometimes when the “light comes on,” a light really does come on.)

I’m a bit concerned about possible genetic makeup, yet unknown to the world of science, that may have been passed on to me. I recently moved from an apartment where there was little room left in my attic where a lot of yard sale treasures went in but almost never came out. All of them were purchased because they somehow connected with something else in the attic. I’m not as good at completing inventions as my father is; most never make it beyond

“process” into “product.” I just bought my first house. With a garage. It is filling quickly with a rather strange collection of items. And more than once I’ve caught myself lightly touching center-aisle sale items as I walk through Home Depot (though I do *not* whistle). I approach libraries and stacks of magazines and friends’ CD collections in much the same way, leapfrogging from one item to the next, browsing with no agenda then suddenly focusing intently, quickly losing track of where I was while also recognizing influences and making connections. I do cherish the eye of the inventor that has grown with me over years of watching my father. Although my inventions currently tend more toward the abstract—these days, ideas and scholarly pursuits—than the gadgets and gizmos that are the artifacts of my father’s thinking, we share a way of looking at the world, one where creativity, problem solving, vision, and most of all, process are highly valued activities.

## Contexts of Invention

If I were to categorize how I spend my hours teaching writing, I’m certain that I would find that I concentrate most time working with students on invention. In order to develop instruction in an area of writing pedagogy that I believe to be essential for my students, I try to better understand invention in its multitude of shapes and forms, from a history of rhetorical thought to watching my father invent an emergency Christmas tree light shut-off the day after our new puppy almost took down the tree. I have to admit that more than once, I have wished I could find *The Complete Yet Concise Handbook of the History of Rhetorical Invention* as I surfed library stacks. I remember when I was a graduate student taking surveys of classical and modern rhetoric, I attempted to make a neat and tidy chart of “invention throughout the history of human kind” to use for class discussions and as a study guide for my comprehensive exams. What I soon discovered as I tried to write seminar papers for those courses was that my charts were pointless; I had decontextualized “invention” from the study of rhetoric as a whole to the point where I basically had rendered it meaningless. An orderly taxonomy or a handbook of sorts, at least an adequate version of such, will never exist because invention shares a complexly intertwined union with its complete rhetoric. If we attempt to isolate invention and its complicated variations from its time in place and history, its perceived cultural value, and its role in rhetorical education, we will end with a practice that is vacuous at best.

That said, I was to issue a “disclaimer” for my readers. For the moment, I want to dissociate a discussion of invention in writing from a discussion of writing inventions. In other words, I want to examine the act of invention—finding content for writing—independent of the emerging technologies one might use for the purpose of invention. Such a separation, however, won’t be possible to maintain for long. For now, though, I want to begin by laying a general foundation, a

starting place, for what I mean by this term—*invention*. Invention is contextual, both as a practice and as a subject of inquiry, and a useful study of invention must remain contextualized with particular attention paid to how it is defined, how and when it transpires, with whom it occurs, and how it is taught.

Folks are usually surprised when I let them know that I love teaching first-year college composition. The reasons are many, most of which have to do with the growth and change so visible at this level. At the same time, I think the course keeps me grounded in who our students are. By “our students,” I mean those who we see entering our schools and programs and colleges and universities—the specific institutions where we teach. With certain exceptions, first-year college writing courses represent a true cross section of who is entering college at a given moment. First, these students typically choose a section of the course because it fits into their schedules (at some schools, students don’t choose at all—they are randomly placed in sections). And in most cases, students aren’t aware of teachers’ reputations to guide their decisions, nor are they signing up for courses en masse with their friends. So throughout an academic year, where it is not unlikely for me to teach this course every term, I can’t help but get a good sense of who our students are.

Over the past ten years teaching this course at two different institutions, I see that the makeup of our student body continues to become increasingly diverse as more and more different types of people have the opportunity to attend college (although I fear this trend might end as various constituencies chip away at affirmative action and certain scholarships with no regard for the positive outcomes of these programs). At my campus, this diversity is represented mostly in age and economic background, as well as in an interesting mix of first- and multigenerational college students. A friend at a private college sees almost all eighteen-year-old, affluent students whose parents are almost all college educated, yet who are vibrantly diverse in race and religion. So I’m cautioned at this point to think that I can paint a context for invention that I have called for that easily and neatly extends to “our students.” My discussions of students in this text are intended to invite multiple contexts for thinking about college writers—my writers, your writers, our writers.

Even after recognizing such diversity among our students and between our student populations, I think there is a common context where we all can begin to think about invention. Like all of us, our students seek models, both indirectly and directly, as a way of recognizing and making sense of the world. Cognitive psychologists refer to this as schema theory, the idea that individuals store frames of reference used to organize and understand experience. Writing scholars have been particularly interested in this phenomenon because they believe that readers and writers look to the world for models of written communication, internalizing their forms, their structures, and their conventions (Beach and Liebman-Klein, 1986, 64–65). They call on content schemata to in-

interpret the meaning of a text while relating the text meaning to prior knowledge and experience. On the other hand, they call on formal schemata when they arrange structures in order to make sense of the meaning of the text (Kucer, 1987, 31). Although it is possible for readers and writers to fail to relate information to a known structure, and also possible for readers and writers to generate text without knowledge of any structure, competent readers and writers allow these internalized structures to guide their written language processes (Flood and Lapp, 1987). Typically, teachers who subscribe to this theory involve students with the discourse of the academy, hoping that these are the forms, structures, and conventions that are internalized. Schema theory, however, is hardly limited to the study of academic written discourse. In fact, schema theory may be more applicable to our students' difficulties with written discourse if we begin to take into account the many other-than-academic textual world models that students internalize.

Currently, I find that the discourse models presented to my students are overwhelmingly fragmented, legitimizing the sound bite in their view; for many, this is the dominant communication system they know. The criticism that greets them at every turn in the academy asserts that they are heavily influenced by, if not completely entrenched in, a sound bite mentality pervasive in their worlds: the color-coded *USA Today*; the music video that not only tells a story in under three minutes but does so with hundreds of fractional images; the evening news that scans international hotspots in under thirty seconds; "Just say no." Condemnation of this world, most often from the likes of would-be education reformists, implies a chargeable cause and effect: Students can't pay attention for any sustained amount of time; they can't maintain interest, or worse yet, they have no interest to begin with; they tend toward the superficial; they don't read books; they are addicted to screen-feeding; they opt for easy answers and quick fixes. Unfortunately, these charges usually land square on my students' shoulders rather than on their environment that, for example, devalues reading or force-feeds the screen.

I unequivocally resist the scornful reproach that faults students and holds them responsible for what they fail to bring to our classrooms. Our students *do* come to our classes with worldviews, with textual experiences, and with developed schemata, even if these stem from sources outside those that the academy tends to value. I argue that we, as teachers of these students, fail to recognize their schemata and, as a result, fail to effectively use what our students know—their prior knowledge—in our pedagogies. In many ways, we are confronted with a simple power struggle: Whose world is valued? Or whose world is more pervasive where? But I contend that the questions shift and the power struggles dissipate when we ask: In what ways can writing instruction pull our worlds together? How can we take what we know about teaching writing—the complex theories of our field—and apply them to the conditions of our students and their worlds, and vice versa?

In *Fragments of Rationality: Postmodernity and the Subject of Composition*, Lester Faigley points out that “there are very few calls to celebrate the fragmentary and chaotic currents of change” in composition studies (1992, 14). I would add that there are few calls to celebrate the fragmentary and chaotic world-views and learning approaches that many of us are seeing in our composition students, too. I am not suggesting that we begin treating the sound bite as legitimate student research, as legitimate exploration for their work. (Interestingly, a good sound bite in the eyes of, for example, the advertising industry, is not an easy text to write. The process almost always entails beginning with the complex, the big picture, and then reducing it while maintaining rhetorical elements such as audience, purpose, message, image, etc. Yet, the sound bite is intended to be easy to read. The sound bite does not invite exploration or criticism. It invites its consumer to accept and believe and be done with. It rarely suggests relationships and connections.) We could continue working in ways that writing teachers have been for years: Introduce students to a learning culture that involves them in complex written texts and extended discussions that move beyond sound bite, surface conversation. In many cases, I embrace this as one of our teaching goals. However, in light of what I see in my own students, I think we are falling short of the complete picture if we stop there. To only value written culture (as academics typically do) implies that our students have failed themselves and that they come to our classes as empty vessels, lacking the abilities and experiences necessary for academic success. If the sound bite or other aspects of fragmented postmodernism form the texts of our students’ worlds, then we need to offer purposeful, alternative writing instruction that teaches them to make connections between sound bites, thus creating more complex texts. Furthermore, we need to teach students to deal with—describe, analyze, criticize—the fragmented texts they confront and that confront them and define ways that these texts can be both explored and connected to others so that students can learn the nature of in-depth examination. Of course, such a pedagogy means we as teachers must become familiar with and, as difficult as it may seem, accept as a reality the fragmented textual worlds of our students.

## Moments of Invention

Investigating the textual worlds familiar to our students offers us a way to begin looking at invention and invention instruction. Compositionists generally see invention as the art of “gathering information about a problem and asking fruitful questions” (Young, Becker, and Pike, 1970, 120). Much like my father’s process of invention, this includes recalling that which is already known and finding something new (D’Angelo, 1984, 202). Emphasized throughout a history of rhetorical invention are *systematic* methods, or heuristics, with which one discovers ideas for writing. In this book, I am less concerned with systematic tasks than I am with the multitude of ways in

which discoveries are made and are later materialized in a written text. I'm not dismissing heuristic methods; quite often, discoveries—good ones, at that—occur because of orderly, methodical procedure. And whereas very little of my teaching practice could be described as heuristic in approach, much of what I am going to describe in this book employs detailed method. My wish is to explore the bigger picture of invention, one that complements the systematic approach with more whimsical, haphazard, at times playful, accidental, and random methods of discovery. Like the bits and pieces found in my father's garage, the fragmented textual worlds of our students are often situated in this picture.

Invention, orderly or not, in most cases can be described as a recursive series of events whose surface features can be described:

- Invention in writing occurs when a writer makes a connection between two or more initial discoveries. At least one of these initial discoveries is external (what the writer encounters), and at least one is internal (what the writer recalls from within). Even if the writer sees a new connection between two internal discoveries, both of which were recalled from within, he or she was able to do so because of an encounter with something external—however small, sometimes not even discernible—that allowed that connection to be made. Likewise, if the writer makes a connection between two external discoveries, something internal—possibly nothing more than basic interpretation—pushes the connection.
- The connection itself is formed into and becomes something new to the writer—an invented discovery. However, this invented discovery is still just that—a discovery—and belongs only to the writer; it exists in a rather chaotic and scrambled form—thought—in the writer's mind.
- As the writer commits the invented discovery to writing, external and internal discoveries continue to be made. He or she is confronted with rhetorical consideration of role, purpose, audience, additional information and insight, and the use of a language system. This written invention forms and re-forms along the way, a process of maturation.

In a great deal of composition instruction, invention often has been treated as a single art form, or a single act of creativity, something that comes first, before writing. Some of my early training as a teacher of writing insisted that students needed to follow a unified process of prewriting, writing, and rewriting. "Brainstorming" was often coupled with techniques of clustering, freewriting, and branching, but all of this activity, I was told, was "prewriting," which was to take place early in the step-by-step process called "writing." As demonstrated by the model above and throughout this book, I reject

the notion that invention could be monoexperiential, let alone the idea that it is not a part of “writing.” Instead, I see invention as a layering of episodes, with each episode becoming what I will refer to as a “moment of invention.” These moments occur when students notice something and when they see relationships and make connections. Furthermore, when students make connections between two or more moments of invention, they experience yet another, richer moment of invention as they create a mental text of sorts, a link between two or more moments, that begins to pull together their fragmented experience. (One might imagine water drops merging—tiny ones combining to make small ones, small ones to medium, medium to large, finally becoming a pool.) The goal, then, is to teach our students to seek out multiple and diverse moments of invention in order to see productive connections that will result in rich, elaborate, and plentiful written inventions that are real in purpose.

Unfortunately, descriptions of invention, including the one above, are often less than effective because they imply a level of proficiency that excludes many of our students. I believe, beginning in the tradition of Aristotle and carrying through to current convention in composition pedagogy, that the art(s) of invention can be taught. However, in order to be taught, the process needs to include a theory of learning and a theory of instruction. For example, experienced writers often complete a process of invention automatically. One might argue that automaticity, as learning theorists call it, is a signifier of proficiency. I argue, though, that it is not the *only* sign of proficiency. For many students, and for a very long time, this process may not become automatic. (How many times has a student come to us with, for example, two ideas and said, “I don’t know what to do with this,” when the connections between the two discoveries and the ways to move into invention are more than obvious to us?) The process outlined above can also be effective when the writer, rather than functioning “automatically,” is highly self-aware. In other words, an awareness of *invention processes* and the ability to articulate *specific acts of invention* also signify proficiency. This latter kind of proficiency is within the grasp of many of our students. Therefore, implicit to a theory of moments of invention is metacognition, an awareness of mental processes involved in the act of learning. Moments of invention require that writers are aware of the connections that they see while constructing knowledge. Therefore, the more numerous and diverse the connections they make, the richer these moments of invention and our students’ learning experiences will be.

## A Point of Invention/Contention

My own college composition instruction becomes more and more vivid to me the longer I teach writing and the more my students share with me stories of their own English education backgrounds. I attended a liberal arts college of about six hundred students supported by a small, almost completely full-time



and tenured/tenure-track faculty. First-year English consisted of a full year of coursework: one semester of introductory composition and another semester divided evenly between research paper writing and speech. I remember approaching this sequence of courses with great enthusiasm. Based on a placement essay, entitled something like, “Bullshit Makes the World Go ’Round,” illustrating the evils of gossip, I was enrolled in an advanced composition class, which we affectionately referred to as “the honors rejects”—we didn’t quite make it into the honors section, we were told, but we showed a skill level that surpassed the rest of the entering freshman class and therefore required a more challenging level of instruction.

I didn’t know better at the time, but really, that course was anything but “challenging” in terms of truly involving students in their investigations of writing topics. Most will recognize my composition instruction as nothing more than the five-paragraph theme in a most reductive sense. *Writing to the Point: Six Basic Steps* (Kerrigan, 1979) was the text adopted by the department of English, and its formulaic philosophies and methods were adopted in every course in every discipline at my college (except for one radical history professor who refused to conform). Students, in their course syllabi from English to sociology to biology, were repeatedly faced with variations on this theme: “You will be expected to write papers according to the methods taught by the college’s Department of English. If you did not take your freshman English courses in this department, you should purchase *Writing to the Point: Six Basic Steps* from the campus bookstore.” Faculty and students alike referred to these six basic steps as “the Kerrigan method,” named after the textbook’s author, William J. Kerrigan (1979):

Step 1: Write a short, simple declarative sentence that makes one statement. [Also called a “sentence X.”]

Step 2: Write three sentences about the sentence in Step 1.

Step 3: Write four or five sentences about each of the three sentences in Step 2.

Step 4: Make the material in the four or five sentences in Step 3 as specific and concrete as possible. Go into detail. Give examples.

Step 5: In the first sentence of the second paragraph and of every paragraph following [the second and third sentences from Step 2], insert a clear reference to the idea of the preceding paragraph.

Step 6: Make sure every sentence in your theme is connected with, and makes clear reference to, the preceding sentence.

As absurd as this list seems, I'm afraid that I have not simplified the method at all. This is the Kerrigan method. It further prescribes an awkward format on writing essays that is bizarre at best. Students were instructed to turn in final essays that followed this format and could be penalized for any mistakes in their presentation:

X. Step 1 sentence goes here.

1. Step 2 sentence goes here.
2. Step 2 sentence goes here.
3. Step 2 sentence goes here.

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X. Repeat Step 1 sentence here

1. Repeat Step 2 sentence here. The paragraph made up of Steps 3 through 6 would follow.
2. Repeat Step 2 sentence here. The paragraph made up of Steps 3 through 6 would follow.
3. Repeat Step 2 sentence here. The paragraph made up of Steps 3 through 6 would follow.

A short, rounding-off sentence would conclude the essay.

To reinforce this formulaic method, students were asked to respond to assignments from the text, like this one following a chapter on Step 4:

Carefully make up a sentence X for yourself, and keeping in mind the requirements of Steps 2, 3, and 4, write a theme on it. Don't forget to add a short rounding-off sentence at the end of your theme. (Kerrigan, 1979, 82)

At times, students were given a little more direction in topic and a little less in formula, although certainly, by the time they saw an assignment like this, they were able to recite the “six basic steps” with ease (in fact, I remember a pop quiz or two that tested my ability to state the steps):

Write a theme on the following sentence X: “A student must have a regular schedule of study.” (1979, 60)

The text also asked students to complete exercises that would help illustrate its prescribed writing instruction:

Go to any two articles (but not news stories in a newspaper) and examine the beginnings of the paragraphs. Prove to yourself that the writers have followed Step 5, and notice the various ways they have done it. (1979, 120)

And in a chapter entitled, “A Breathing Space,” student writers were presented with a list of summaries and reminders of what they had learned thus far, which included:

- Steps 1, 2, 3, and 4 are not rules that someone has decided on, like the rules of a game. They can’t be changed, as in the case of the elimination some years ago of the center jump in basketball. No, they arise out of the very nature of writing, and are as necessary for writing as heat is for cooking, cloth for clothing, fuel for a motor.
- Do not hope to find either a sentence X or any topic sentences in all that you read, especially in articles of information. You will rarely find a sentence X or topic sentences in stories, of course. But when you read, always try to follow any writer’s *explanation*.
- No one can write a theme on a topic. You must write a sentence about a topic, then write the theme strictly on that sentence. Once that sentence is well written, the theme nearly writes itself, because that sentence dictates what must be said.

- Students' themes should not be written on their opinions, nor on vague notions they have picked up from their reading on "Pollution," "Communism," "The Energy Shortage," "Inflation," "Capital Punishment." Students should write on what they have observed first-hand, or on what they are learning in an orderly and detailed way in their other classes. Complementarily, students should be encouraged to be gaining knowledge and understanding, not forming "opinions."
- Do not attempt to be interesting. (Remember, that is not your purpose.) You will not be called on to write for a reader who is not already interested. And what your reader is interested in is a good, clear explanation of something, backed up by real clear, convincing details and examples. (Directly quoted, 1979, 98–99)

The Kerrigan method professes a notion of reading and writing contradictory to what most of us practice as sound composition instruction today. In fact, it professes a notion of reading and writing that often contradicts itself—just what *is* the point of *Writing to the Point*? One need not struggle to see the messages students (myself included) were forced to grapple with after a semester of composition, only to be reinforced throughout four years of academic study: Writing is not a complex process, but rather an algorithm in six easy steps; all writing looks and behaves in the same way; student writing that doesn't fulfill Steps 1–6 is not good writing, yet "other" writing may not fulfill all the tenets of the method; the writing that students produce has little or nothing to do with the writing students will read; topics are easily reduced to a simple, declarative sentence; students' opinions don't matter and therefore should not be expressed or developed in writing; students have superficial experiences and know little and should continue to know little about pressing issues; information and knowledge exist in a vacuum and should not inform student opinions; student writing should not attempt to engage an audience.

Ironically, the college called this course *Rhetoric* 101.

Little changed in philosophy between a semester of introductory composition and the course on research paper writing. Yet two differences in these courses posed an even more significant problem than the apparent incongruity in the Kerrigan Method: First, I was expected to write longer papers, casting aside bizarre formatting for what most would recognize as an academic paper; and second, I was expected to consult outside sources and incorporate them effectively into my writing, but only after I had stated my sentence X and turned it in for teacher approval. We didn't have a text for this course other than a

packet of information on library resources and styles of documentation. This course was not centered around any particular seminar topic. There were no common reading assignments that gave the course any uniform content to explore. Instead, we were expected to find something that we wanted to write about—the theory, I suppose, was that students would be more inclined to write well when they were allowed to choose topics that interested them (yet another contradiction of the program). As in all other courses we would take, we were told that the Kerrigan Method would serve us well; there was no need to consult any other text about writing.

“I don’t understand how the Kerrigan Method works in a ten-page paper. Won’t those be really long paragraphs?” This seemed like a legitimate question at the time that I asked it. Today, it sounds more like one of those questions that makes teachers think, “Where did I go wrong?” With some practice, I had mastered the formula: Given a topic, I could write a sentence X and fill in Steps 2–6 better than anyone on that campus. My papers were taken to English Department meetings as models of how well the Kerrigan Method was working, and I was soon hired in the writing center to help struggling freshmen who had no idea what to do when their teachers stamped, “You need details and examples in this paper. See Step 4.” I could tell them how to “do” Step 4. But ask me to write a ten-page research paper, and I was at a loss, faced with cognitive dissonance at every turn.

Once I was assured that I must have more than five paragraphs in a ten-page paper, my next battle was finding a topic for my paper. In conference with my professor, I told him that I wanted to write about the Moral Majority. He told me that I needed to choose a topic about which I knew something so that my paper would be more than a patchwork of quotes. But I did know something about the Moral Majority. They were responsible for canceling my favorite television program, “Soap,” for its sexual content and religious satire, and I wanted to learn more about how this group of people operated and how they had the power to influence the television industry. My professor asked me if I had a thesis in mind, and I told him that I strongly disagreed with what the Moral Majority had done, but that I didn’t know too many of the details. My professor told me that such a thesis would be too opinionated, and that I needed to develop a strong sentence X, simple and declarative, before I began to conduct my research. He strongly suggested that I find another topic.

After many pained hours of sitting alone in my dorm room trying to develop a sentence X that met all the requirements that I had been told were hard-and-fast rules of all writing, I finally reworked a topic on the Moral Majority that my professor approved of. I clearly remember being less enthused about writing it than any other paper I had written thus far in college. The paper I wrote had more to do with Jerry Falwell than it did with what made “Soap” so offensive to his followers that it led them to target an entire television network. The paper had more to do with a history of Falwell’s organization than it did with the manipulative tactics of an organization that was developing significant

political strength and stamina at a time when I was developing significant political interest and identity.

I was less than satisfied with the grade I received on that paper, but even more confused by the rationale for the grade: My paper lacked development. I had treated the topic too superficially. Just as I had begun to develop a topic, I moved onto the next. In Kerrigan-ese, I suppose that meant that I needed more Steps 3 and 4. My professor, recognizing my difficulties, decided to stray from the tried-and-true six-step method and copied a number of pages from a text that perhaps would give me a different framework for looking at my writing than Kerrigan had. He also thought that a different view of writing might help me when I was tutoring students who also were having trouble with development. *The Lively Art of Writing* (Payne, 1982) offers guidance in “The Shorter Paper” and “The Longer Paper,” which consists of the ever-so-popular introduction as inverted triangle, body as a series of rectangles, and conclusion as opposite from the introduction. Both examples illustrated how to arrange a paper and suggested that with “The Longer Paper,” there was more flexibility in organization granted to the writer when he or she had more text to work with, but in the end, an essay should still “look” like the figure.

Today, I am not surprised that *The Lively Art of Writing* really didn’t help me with my problems of topic development. My difficulties didn’t lie with how to organize my writing. If I knew anything, I knew how to organize a paper. What I didn’t know how to do was to participate in purposeful acts of invention in order to create meaning out of a “suitable” topic for an academic paper, how to research that topic effectively, and how to develop that topic as fully as possible within the constraints of an assignment that asked for a ten-page paper.

## What Writers Do

The writing instruction I received as a first-year college student privileged form over content. Interestingly enough, the evaluation of final written products, both by the professor and by myself, privileged content in a manner inconsistent with this pedagogical practice. Invention, exploration, and topic development were viewed as skills that follow or are secondary to proficiency in form and structure and, therefore, don’t necessitate instruction. In her discussion of why basic writers are prone to produce “underdeveloped or meaningless texts,” Marcia Dickson refers to formulaic writing instruction as a possible culprit: “The student merely has to fill in the blanks with information. This example of textual construction . . . not only encourages the student to fill in the blanks in a *correct* form—introduction, body, and conclusion—it implies that all good writing will fit this pattern. Writing is a simple matter of formula over matter” (1995, 70). As much as teachers think that such forms provide students with a structure that will help their writing, Mike Rose found in one study that students who suffer from writer’s block were writing under a

set of “rules or with planning strategies that impeded rather than enhanced the composing process,” thus inhibiting their growth as writers (1980, 390). In the case of the Kerrigan Method, the six-step form was such a planning strategy, dramatically limiting the vast possibilities students could encounter and utilize to develop their writing.

Writing instruction that espouses rigid forms and formulas over discovery and exploration allows, and perhaps pushes, our students to compose coherent yet empty themes disguised as academic writing. The pedagogy outlined above is certainly extreme but is the kind that Dickson warns “is more representative than we would like to believe” (1995, 70). The problem here runs deeper than asking students to fill in the blanks, and it runs deeper than asking them to fill in the blanks correctly. Such writing pedagogy disregards the need students have for instruction in how to *look for* the blanks, how to *find* the blanks, how to *recognize* what the blanks are, and how to *make* the blanks. This is the essence of what good writing *process* is because these are the problems of writing.

Most well-seasoned writers understand this. Their processes, though, may have become so rooted in automaticity that they are unconscious of what they are doing when they write. Interestingly, many proficient writers claim that they were never “taught” how to invent, how to find topics, at least not in the way we think about teaching writing today. Rather, they were and are tireless consumers and producers of written texts of various shapes and forms in a variety of settings who have absorbed a range of processes from their readings and struggles. Furthermore, experienced writers understand the important role that disorder plays in discovery. They have found the benefits of disorder, which, by its very nature, may uncover what lies beneath the surface, below what is only apparent at first glance. And clearly, most experienced writers possess an urgency for writing in the first place that comes from their awareness of and an engagement with their surroundings.

Our students, though, are often less than seasoned. They require instruction that not only teaches them how to find and solve the problems of writing, but also how to do so with the capacity that proficient writers employ. Where should our instruction begin? Does such instruction have a discernible starting place?

It would be tempting at this point to exclaim, “The computer!”

Tempting indeed, but somewhat premature. I will commit, however, to the claim that computer technology is an undeniable player in the context of students’ writing today and, as I stated earlier, any discussion of teaching invention and student writing must include an examination of the worlds where our students live. These worlds include technology, and, more and more, the worlds where they write and *learn* to write include technology. Yet, I’m still not prepared to couple invention in writing with the technologies we may use to write. I believe we first need to flush out some of what we know about proficient writers—their behaviors and habits, their experiences, their abilities—and bring this to articulating a theory of computers and writing instruction.

In an attempt to understand how experienced writers invent, I want to begin by briefly looking at two areas: *noticing as exigency*, and *disorder and reflection*. These areas, I would argue, are interdependent and devoid of particular order or importance. The distinctions I make in the discussion that follows may seem to imply a hierarchical linearity I do not necessarily envision. However, each of these areas seems equally important to the process of invention; they are rarely as separable as presented here.

**Noticing as Exigency.** Creators—visual artists, composers, writers—depend upon their ability to notice. This concept of noticing is difficult to define, partly because noticing appears to be small, quick. The act of noticing is often, unfortunately, slighted at the expense of the more thorough processes of perception and observation. For example, Rudolf Arnheim contemplates visual perception:

A difference between passive reception and active perceiving is contained even in elementary visual experience. As I open my eyes, I find myself surrounded by a given world. . . . It exists by itself without my having done anything noticeable to produce it. But is this awareness of the world all there is to perception? Is it even its essence? By no means. That given world is only the scene on which the most characteristic aspect of perception takes place. Through that world roams the glance, directed by attention, focusing the narrow range of sharpest vision now on this, now on that spot, following the flight of a distant sea gull, scanning a tree to explore its shape. This eminently active performance is what is truly meant by visual perception. . . . The world emerging from this perceptual exploration is not immediately given. Some of its aspects build up fast, some slowly, and all of them are subject to continued confirmation, reappraisal, change, completion, correction, deepening of understanding. (1969, 14–15)

Although he mentions “the glance,” Arnheim’s concerns lie with the ability to actively focus. Ann Berthoff continues in this vein,

Any composition course should begin, I believe, with exercises in observation. . . . The reason for a writer to have a lot of practice in looking is not to gain skill in amassing detail to be deployed in descriptive writing. . . . The real reason for beginning with observation is that looking—and looking again—engages the mind, and until that happens, no authentic composing is going to take place. (1984, 3)

Demetrice Worley found that students excel in writing when they are taught to visualize, a skill left behind very early in school curricula (1994, 139). I know of no writing teacher who would argue that students don’t need extensive experience in perception, in recognizing and interpreting, becoming aware and



coming to understand. Nor do I know of any compositionist who would find what Berthoff calls “exercises in observation” out of the ordinary in a writing class, where students learn to sustain their gaze both to gain insight and to engage deep thinking. Yet Arnheim, Berthoff, and Worely speak of something larger than I am concerned with at this point. These writers’ texts indicate how little attention writing teachers give the act of *noticing*. It is a difficult act to define, which may be why it is not often taught.

I define noticing as allowing one’s eye to be caught. My use of the passive voice here is intentional, for I wish to impose a certain level of passivity in noticing. Paradoxically, though, such passivity requires activity of sorts. Noticing can occur when one suspends or lets down one’s own guard. It is a matter of allowing oneself to be unfocused and inattentive and pervious, of widening the scope of one’s purview and dissipating the boundaries that limit that scope. (The difference I am making here is mirrored in my father heading to the store with list in hand versus him strolling down the aisles, waiting to notice something he comes in contact with.) In other words, it is a matter of actively deciding to become passive so that one’s eye can be caught.

Many teachers of writing may be alarmed by this suggestion, that passivity of any kind could actually become a part of writing pedagogy. As a profession, I feel we are near obsession in seeing a dichotomy between the active and the passive, when such a distinction is not as clear as one may think. Teachers claim we want our students to be *active*, not *passive* learners, as if our students are either one or the other because of a simple change in cognitive processes. I would argue that our students are active creatures in many regards and that what we consider to be their passivity is instead quite deliberate. Our constant push toward what we consider active learning may fail our students in an important part of problem finding.

A distinction between active and passive behavior is not nearly as telling to teachers of writing as is the distinction between productive and nonproductive. I once asked a sophomore composition class to write a critical response to a representation of a group of people or a social issue found on any popular television program. One student’s response to the assignment still resounds in my mind: “I watch television for entertainment. I don’t want to think about it, I just want to sit back and enjoy it.” Such resistance on his part is not uncommon; those teachers who incorporate current popular cultural studies practice in their writing classes are often told by their students that their assignments “ruin” the entertainment value of television, film, music, etc. Many would be quick to label this student’s attitude as “passive,” a label that stems from the student watching television passively. I would disagree with this assertion. This student’s attitude is an example of the active passivity I describe above, but it is also *nonproductive*. The student has actively chosen how he wants to view that television program. And whereas he may not be engaged in active, critical thinking about the program, he has certainly and quite actively defined the act

of viewing for himself. He has built up his guard, limited his scope, and prevented his eye from being caught.

A new conflict arises for the student with a writing assignment such as that described in the above scenario. In many ways, the student's resistance toward noticing might stem from the fact that he was in a position where he had to respond to a writing assignment. I had directed him toward a very specific type of noticing. Whereas I expected his writing to grow from what he noticed, the assignment—an academic essay requiring description and analysis—loomed overhead. The assignment provided the exigency for writing more than anything the student could have noticed on his own. For writers who are not writing under the constraints of some type of assignment, noticing implies an interest, not only in a subject but also in the act of noticing itself; one notices because he or she becomes engaged by the act of noticing. Writers' dependency on noticing, however, is derived from their ability to use it as exigency. Noticing might be a beginning, but it is not *only* a beginning. In other words, noticing isn't a starting place in that all invention grows from one instance. (It is at this point that we move closer toward Arnheim and Berthoff's thoughts about perception and observation.) Noticing is a continual process because of the questions that writers ask themselves when they notice something. In fact, noticing may very well be a question in and of itself. The very moment one notices something, one begins asking, "Have I ever experienced anything like this before?" The question is implicit in the act of noticing. One only notices something that is different or similar or peculiar or problematic, making comparisons and seeing relationships between what has been noticed and what is already known.

### **Relationships and Connections: Disorder and Reflection.**

The questions of noticing help writers to establish relationships, to see commonality between two or more things. When writers can make connections between two or more ideas or pieces of information, they are making meaning and creating knowledge. The more seemingly different the ideas or information linked, the more complicated the relationship, and thus the knowledge, constructed. David Bleich relates this to cognitive stereoscopy:

Knowledge is always a re-cognition because it is a seeing through one perspective superimposed in another in such a way that the one perspective does not appear to be prior to the other. Because the perspectives are different, or heretofore unrelated in our minds, the new knowledge is sometimes described as the "aha" experience, or surprising and satisfying at once. (1986, 99)

These relationships are drawn from connections between what is already known, prior knowledge, and what is new, although the prior knowledge often remains invisible during this process. In other words, if I see a connection between two facts that I did not know, new knowledge is constructed by bringing these facts

together; however, the relationship is supported, often unconsciously, by what I already know, for prior knowledge in some way has allowed me to make the connection in the first place. (This helps to explain why some connections that seem obvious to the instructor sometimes are not available to the student.) Similarly, contact with an external idea often brings together two or more internal ideas, yet the external entity is often dropped or lost, serving as the occasion for the connection but adding little in information to the newly created knowledge.

Writers' connections can only be as rich as the opportunities that make them possible. The more complicated the approach toward a particular topic, the greater the opportunities for seeing relationships and making meaning. In their study of children writers, Bereiter and Scardamalia found that children who had difficulty generating text were typically having difficulty inventing (1987, 62). In addition, they also state, "All the evidence we know of indicates that children's main problem with content is in getting access to, and giving order to, the knowledge they have" (1987, 64). Bereiter and Scardamalia reveal two areas of concern when considering invention in writing: finding content and dealing with discovered knowledge.

In order to find content, proficient writers purposely place themselves in disorderly situations where relationships and connections can become possible, recognizing the value of a scattered and jumbled perspective. If those disorderly situations don't appear to exist, or are not easily visible, they take painstaking steps to create disorderly situations. As writers find content through disorder, they use the act of writing to bring order to and thus create their newly discovered knowledge.

Writers often seek out collaborative situations—the chaos of working directly with other human beings—in order to bring various perspectives to the act of problem finding as well as problem solution. Not only can collaboration reveal missed or unexplored content, but rich collaborative experiences can provide the tapestry of connections writers need to create knowledge. Collaboration can aid in the search for content both as deliberate situations (writers' groups, brainstorming meetings, feedback to written texts) and unplanned occurrences (casual conversations and heated arguments). To illustrate, we can consider the writing behaviors of my colleagues and myself who teach English on our small campus. We work on writing projects that are both individually authored, where only one name is listed as the author, and collaboratively authored, where all names are listed. However, anyone who has watched us write understands how artificial these labels are and, thus, how uncomfortable I am using them. The nature of the writing task dictates what type of collaborative experience is used, but in all cases, our meetings occur on a continuum of what could be considered deliberate to haphazard. If we are assigned a writing task, our collaboration usually begins with some type of a scheduled meeting—in the faculty conference room, over Chinese food, on the Internet. Other writing projects, those that are not charged to us, for example, by our dean or by the chair of our campus computer

committee, arise out of corridor conversations where one of us begins to tell the others about something he or she noticed, where sometimes tempers flair or loud laughter resounds, and where colleagues from various disciplines come out of their offices to add, "It's not like that with my students at all. I think students' misperceptions of, for example, geology come from. . . ." These collaborative situations enrich our writing by disclosing to us a disorder that subsequently allows us to invent content. Regardless of how collaboration looks, key to all collaborative situations is that multiple world views are being brought to the table in what John Trimbur calls "intellectual negotiation," where engaged individuals make a commitment "to take their ideas seriously, to fight for them, and to modify or revise them in light of others' ideas" (qtd. in Wiener, 1986, 55).

Contact with others is not the only means writers use to create disorder and to find content. Contact with other written texts is integral to understanding the role of disorder in finding content for writing. One's purpose for writing may often dictate the type of disorder one searches for or is willing to create for oneself. Likewise, the purpose for reading a written text dictates the role it will play in the disorder of finding content. For example, the differences between an Associated Press story reporting recent Center for Disease Control statistics of HIV transmission and Michael Bronski's "Magic and AIDS: Presumed Innocent" are apparent (1993). The writer of the AP story avoids chaos; his or her purpose for writing is to present statistical information succinctly and concisely. The goal of this author's writing process is to find order as soon as possible—if not to begin with order. Bronski, on the other hand, formulating his thesis that society finds comfort in labeling people with AIDS either innocent or guilty, needed to consider metaphors of illness, construct a history of AIDS, pore over interviews with Magic Johnson, and read other writers' perspectives on Johnson's disclosure that he had contracted HIV (1993). Although I cannot be certain, my sense is that his goal was to bring as much disorder to his invention process as necessary in order to find complex content and to use composing as a way of bringing order to that content without reducing the content's multileveled nature. Similarly, the reader of an AP story probably would not experience disorder by processing the text alone, though if the text were aligned with conflicting statistical data presented in similar types of texts, disorder in a reader's thinking about AIDS might occur. No careful reader, however, could find Bronski's analysis of "innocent" and "guilty" simplistic. The very experience of reading Bronski's elaborate arguments, at least reading the text carefully, would bring about a sense of chaos in the reader. If the reader looked at the two articles together, where Bronski takes statistical data like that represented by the AP writer to task, a different experience with disorder would probably ensue. Consequently, the contact that readers have with these two texts would result in very different opportunities for disorder, and thus for finding content.

Once they find it, proficient writers and our student writers often differ in how they deal with complex content. Bereiter and Scardamalia admit that "there