

INVENTION AGAIN OR HOW THE SKEPTIC GOT INTO HOT WATER

JEANNE H. SIMPSON

When I first attempted to teach invention, I used one of the handy gimmicks from the textbook I was issued. I asked my students to "cube" writing about a particularly hideous kind of gumball. Each student was issued a gumball and then the guidelines for "cubing" were announced: no stopping for five minutes at a whack, no editing, and so on. The cubing exercise combines the anything-goes approach of Elbow's freewriting with the more structured approach of topics--description, association, comparison, analysis, application, and argument. My purpose was to convince my students that a good invention exercise produces the material from which an essay may be made. I still use this lesson, but I realize now that getting students to trust in heuristics, the avowed goal of my lesson, is not a simple goal. Neither had I given much thought until recently to what I mean by a "good invention system." Although I was already convinced of the efficacy of invention for writers, I was teaching it without a theoretical base for either the teaching or the invention.

I realized that to do the job, I needed to find a theoretical base for both. I decided that the theory of invention had to come first. Having gotten that far, however, I discovered that I had no idea of what such a theory would look like. I had heard about something called a metatheory of invention, which, it turned out, is what I needed. The term "metatheory" was intimidating, but I felt compelled to look for one anyway. I was and am committed to the idea that to teach composition, and particularly invention, effectively, I must have a personal theory. Until I dealt with theorizing myself, I would not really understand what I was doing in the classroom.

In his essay, "Invention: A Topographical Survey," Richard Young explains the need to describe the characteristics of invention, to define what invention can do, and to articulate a pedagogy of invention. It sounds very reasonable in the essay, and Young's careful discussion of the theories of invention is certainly beguiling. It is an altogether different matter when a trench-dwelling teacher comes up against the problem of teaching invention in real life. Suddenly the

realms of theory are far away, impenetrable, rarefied. I felt the same way I did when I read *Lost Horizon*; Shangri-La sounds lovely, but how do I get there myself?

The process of “getting there,” of putting together a useful personal theory of invention and pedagogy, involved two steps. First, I looked to see what some others have done. I did not feel obligated to read everything there is on theories of invention, and a good thing, too, because there is plenty for the most ambitious scholar. I did need to get an idea of what a theory of invention looks like. The second step was to attempt articulating a theory of my own. I might conclude that my theory and someone else’s coincide, but at some point, in order to teach with any conviction, I needed to spell out to myself precisely what I think about invention.

In his introduction to *Contemporary Rhetoric: A Conceptual Background with Readings*, Ross Winterowd begins to develop a metatheory of invention. Young, Becker, and Pike have provided the definition of heuristics from which Winterowd proceeds. It is a useful definition, providing the basis for developing a metatheory:

A heuristic procedure . . . serves three functions:

- (1) It aids the investigator in retrieving relevant information that he has stored in his mind . . .
- (2) It draws attention to important information that the investigator does not possess but can acquire by direct observation, reading, experimentation, and so on.
- (3) It prepares the investigator’s mind for the intuition of an ordering principle or hypothesis. (120)

Essentially, Winterowd’s metatheory describes the possible variations in invention systems, derived from a study of existing systems. Winterowd offers four sets of systems: finite and content-oriented; non-finite and content-oriented; finite and form-oriented; non-finite and form-oriented. Winterowd comments that he prefers finite systems because they seem to lead to completeness.

While Winterowd classifies systems of invention, Young adds particular qualities to invention, expanding the original definition some. For example, he explains heuristics as “reusable procedures” (1). This concept suggests that heuristics must meet a set of criteria, as Winterowd also implies by preferring finite sets. That is the point at which I found myself in hot water. What are the criteria for heuristics? How do we test them?

Young proposes reusability. Later in the same essay, he expands on this idea as he searches for useful criteria:

Still another criterion is whether the psychological operations are fundamental, i.e., in some sense necessary to thought and inquiry, or whether they are arbitrary or designed for use only

in particular, specialized situations. (28)

Young rejects the idea of situation-oriented heuristics. His colleague Kenneth Pike adds the importance of universality to the list of criteria: a heuristic must represent universal psychological actions in order to be reusable (129). In his bibliographical essay on invention, Young also condenses Janice Lauer's criteria for heuristics, comprehensiveness, and efficiency (28). A comprehensive heuristic considers all the elements of the rhetorical situation and from more than one perspective. An efficient heuristic is simply designed, is sequential, and assists the writer in sorting the usefulness of paths of inquiry. We may put together a list from these criteria:

1. reusability
2. universality of psychological operations
3. finite structure
4. comprehensiveness
5. efficiency

Given a set of criteria to work with, one may see if in fact they lead to useful evaluation of heuristics. I used these criteria happily until I encountered a problem for which they did not account. Sometimes a heuristic fails because writers, particularly student writers, look for the wrong kind of information as they use the heuristic. Invention will help content almost always. We have all seen vague essays become more interesting and detailed after we trot a student through an invention effort. However, Richard Larson implies another possible function for invention: to clarify "the kinds of connections among ideas" (666). Here invention spills over into arrangement and style. If student writers are not aware of the possible relationships between ideas, they won't accurately communicate the ideas they have, no matter how extensively they use a heuristic to produce ideas. That is, they won't unless they have a heuristic that describes those possible relationships between ideas.

Since this problem is a common one, it is worth exploring to see how invention may be applied to it. In my freshman composition classes, students often inaccurately represent relationships between ideas, usually with a poor choice of conjunction. For example, a student wrote the following sentence: "My brother Everett plays basketball at school most afternoons and he burns up energy and it keeps him out of trouble." While this sentence has other problems, its chief difficulty is inappropriate coordination. The student needs to convey a cause and effect relationship between her ideas; "and" does not suggest cause and effect.

This problem occurs at a stage in the writing process somewhat later than the beginning; we are past the need to find something to write about and something to say about that subject once discovered.

Yet the use of invention described by Larson is clearly called for here. Therefore we may try another criterion for the metatheory at this point: a heuristic should be applicable at several, possibly all, stages of the writing process. Winterowd suggests just such a criterion, pointing to the work of O'Hare, Mellon, and Christensen at the sentence level, Becker at the paragraph, and Young, Becker, and Pike at the level of the whole discourse (43-46). A further refinement might suggest that if students are to use a heuristic to determine the right relationship between ideas and make the necessary transformation, the heuristic ought to describe all the possible relationships.

To help this student, I went to several heuristics I have used successfully, including the tagmemic matrix of Young, Becker, and Pike, "cubing," and the common topics. These systems all imply relationships, and they all explicitly state that contrast is one possible relationship. I have achieved good results with the tagmemic matrix, but I did not in this instance of students' misuse of conjunctions. Static and dynamic are characteristics, not relationships. Contrast, of course, is. The relationships are implied, not stated, and implication in a heuristic may not be enough for the student writers I am talking about. The one heuristic in the group which explicitly outlines the possible relationships between ideas is the common topics. They are all there, big as Dallas.

The metatheory needs readjusting again at this point. The common topics, Winterowd explains, do not form a finite set. Yet in this instance, a non-finite set seems preferable. Further, my suggestion that applicability at any stage of the writing process ought to be a criterion for heuristics seems to fail, since one heuristic works well here and the others are clearly inferior for this task. Young argues against situation-oriented heuristics. However, he refers to rhetorical situations, not the writing situation itself. Perhaps a new version of the metatheory would state that a heuristic should lead the inquirer to the kind of information needed at a given point.

Young has alluded to the difference in function among various kinds of invention:

The function of the pentad . . . differs from that of Aristotle's topics, though the two are related. The topics are aids in discovering possible arguments in support of propositions; the pentad is an aid in discovering essential features of the behavior of groups or individuals. (15)

Winterowd describes the usefulness of Becker's TRIPSQA system in paragraph generation (43).

Again, we are required to adjust the set of criteria. We must add the quality of appropriateness to the set. This quality may be a sub-

category under efficiency, since Lauer's definition of efficiency includes the idea that the heuristic should permit the writer to evaluate the relative usefulness of lines of inquiry.

The problem I have described also raises the question whether comprehensiveness is a useful criterion for invention heuristics. On the one hand, a comprehensive heuristic will reveal what the writer does not know; in this case, presumably using a comprehensive heuristic will suggest to the writer that he does not know what kind of information he needs. On the other hand, as I pointed out, the tagmemic matrix does not specify the possible relationships between ideas; nor will it reveal its own lack of specificity. An inexperienced writer needs a particular kind of heuristic here. Upon spelling out this problem to myself, I was unsure that there is a heuristic for helping the writer to determine what kind of heuristic to use in a given situation. It is one thing to provide writers with Swiss Army knife heuristics which purport to solve all kinds of problems. There are times, however, when a Swiss Army knife is a poor substitute for a pipe wrench. How does a student writer tell when he needs a pipe wrench or perhaps a sledge hammer?

The particular functions of some heuristics, such as those mentioned by Young and Winterowd, are identifiable in the explanatory material surrounding them, not in the heuristics themselves. Burke's Pentad is an obvious example. Young describes this problem: "Techniques of invention are acroamatic; they are not wholly intelligible standing alone" (16). Lauer's criterion seems to be a very important one, especially for student writers. The problem is that the relative usefulness of an invention method and the quality of the results it generates are not determined by heuristics standing alone; they are often determined by the instinctive judgment of the writer or sometimes by the experience of a teacher.

If heuristics represent universal psychological functions, as Pike's criterion required, and if instinct and experience meet in human psychological functions, then theoretically, a heuristic for heuristics can be developed. I asked myself what particular psychological function or functions does experience trigger? Generally, association. Specifically, comparison. We use comparison with previous experiences to draw conclusions and make predictions. Given this mode of thinking, experience with heuristics will lead us, as we write, to make appropriate choices from among the heuristics we know. Providing experience with heuristics is the goal for teaching invention I began with, but now I have a much more powerful reason for it. I also have implied a sequence of interim goals, such as developing familiarity with as many different heuristics as possible and discovering as many uses as possible for each of them. I have as well discovered at least two methods for achieving my goals.

Richard Larson's "Invention Once More" essay specifically argues that analysis of writing for discovering various reusable plans

for invention is an effective method for teaching invention. Such exercises provide students with one kind of experience to use as a basis for comparison for later invention problems. For example, analysis of a writer's use of the common topics as a means of establishing clear transitions could provide students with an experience with using the common topics. Such experience may teach several things, in fact, including the idea that "real writers" use invention to good effect and the idea that invention and final product are truly connected. Simply having students do some preliminary invention does not necessarily reveal the connection to them.

Learning how other writers use invention is only one half of the process of experiencing invention, however. The other half is having students use invention themselves. The more experience they accumulate, the likelier it becomes that they will make the right choice of heuristics for particular problems. Given this goal of providing plenty of experience, we still face the problem of selecting appropriate heuristics, so that the experiences we give students will be useful ones rather than negative ones. While process of elimination is obviously one of the universal psychological operations, it is not always efficient. At this point, it appears that a prepared and experienced teacher is vital.

Teachers need to know as many different heuristics as possible, and even more important, to have some knowledge of their contexts to overcome the problem of acroamaticism which Young describes. Teachers need as well to become more imaginative in their uses of heuristics. To suggest to students that they use a comprehensive heuristic, the tagmemic matrix, perhaps, as a beginning for finding ideas, for generating the raw material from which to build a paper, is certainly a good idea. However, finding something to say, the stated purpose of invention, means more than getting a draft underway.

Finding something to say and the best way to say it are problems that occur at all stages of the writing process and at all levels of discourse. I have used various heuristics to help students to make decisions about how to organize papers, how to develop a paragraph more completely, how to describe an event with the most accurate words, and how to punctuate a compound sentence. My students have used heuristics to analyze their audiences, to define their personas. They have even, after weeks of using heuristics and hearing the word constantly, begun theorizing about heuristics. They asked, all on their own, "What makes a good heuristic?" And to my delight, they began answering that question. They tried the criterion of portability, for example, feeling that to be of any real use a heuristic ought to be easy to remember. Ultimately, they rejected that criterion after becoming aware of several very effective heuristics which were far from portable. They and I have become very sensitive to the usefulness of systematic thinking.

An extended example may illustrate my point. I have used the

common topics to teach, of all things, effective use of the semi-colon. Suppose we work with this sentence:

The postman was bitten by a dog; it was a Brittany spaniel.

We will ignore for the moment other possible ways to convey this information. The writer must choose how to put the ideas of the two clauses together and indicate to the reader how the ideas are related.

The relationships between ideas listed in the topics are these: similarity in kind, difference in kind, similarity or difference in degree, cause to effect or effect to cause, antecedent and consequence. None of the words one ordinarily uses to indicate these relationships is particularly appropriate in a sentence constructed as this one is. The alternative is to recast the sentence into a version like:

The Brittany, a member of a breed not ordinarily associated with viciousness, bit a postman.

Or:

A Brittany spaniel bit the postman.

The version which uses a semi-colon, however, is an efficient sentence, valid within a rhetorical situation where the audience already knows about Brittany spaniels. Further, placing the statement about the dog's breed in a separate clause emphasizes the oddity of the event. The semi-colon becomes a choice at the end of a process of elimination conducted through the heuristic and the list of available connectives. Earlier, a heuristic procedure for analyzing the writer's audience revealed the audience's knowledge of the breed. The choices have been made consciously with rhetorical principles in mind. Yes, it is laborious and time-consuming, but the result is more satisfying to the writer and to the teacher than any short reference to a rule would be. Using heuristics quickly and efficiently is the result of practice. They become internal and automatic through practice. The smallest opportunity for practice shouldn't be overlooked.

It is important to note that in this instance, the common topics proved to be the most appropriate heuristic. I knew that through experience; my student might have tried half a dozen others before hitting on a useful approach. Similarly, if I were helping the student to begin a paper on Brittany spaniels, I would certainly suggest at least one other system of invention to encourage thorough exploration of the topic. Probably I would refer the student to Larson's questions, a heuristic my students agreed is hardly portable. They and I both notice that it does, however, yield excellent results for students suffering from I-can't-think-of-anything-to-say-it-is.

As I gained confidence in my own experience with heuristics,

however, I continued to struggle with the idea that there must be some way to help students find appropriate heuristics without the months and years of experience that seemed necessary. Experience in a teacher is certainly a relative thing, entirely unreliable. I went back, ultimately, to Winterowd's contribution to invention theory, the four sets of finite and non-finite, form-oriented or content-oriented heuristics. And SHAZAM! I saw the answer.

If a good heuristic provides the kind of information a writer needs, then the way to identify which kind is by the sets Winterowd describes. Is the needed information about form (semi-colons and conjunctions, for example)? Is it about content? Is a complete (finite) set called for? Or will a non-finite, or even an incomplete set solve the problem? In the instance I used of the student who had only "and" available as a connective, the situation called for a finite, form-oriented heuristic. Winterowd classifies the topics as a non-finite set; however, the relationship section of the topics appears to be a finite set. Certainly heuristics can be both content-oriented and form-oriented, but the point is that a person using a heuristic can analyze which it is in order to measure its usefulness in a given situation. Similarly, a writer can analyze a writing problem to determine whether a form-oriented or a content-oriented heuristic will work.

Our goal, as teachers, is to use the theory to identify possible solutions to writing problems. And our goal for students is to give the same skill. Teaching invention means more than giving students a heuristic that conforms to a metatheory; it means giving them the metatheory itself. The gift of a metatheory is the obvious conclusion to a sequence of learning that includes these goals:

- (1) Discovering that heuristics are effective tools to be used for solving writing problems of all kinds and at all levels.
- (2) Learning to trust heuristics by experiencing success with them.
- (3) Learning to apply invention procedures independently, not merely at the goading of teacher or textbook; using invention should transfer out of the classroom.
- (4) Having enough confidence in invention systems to attempt creation of one. I do not mean that students can or should abandon the ready-made invention topics of Aristotle, or the tagmemic matrix, or whatever. However, sometimes a situation-oriented heuristic is more efficient than a universal one. A good writer can create one as the need arises. A writer who creates a heuristic, however, needs a metatheory for identifying the kind of heuristic needed and the quality of the one chosen. I have seen students theorize about invention, create heuristics, and identify what kind of heuristic they need. As writers they are more confident than they were when all they had was a concatenation of rules. Reusable and reliable methods and confidence in them seem to me to be the goals of teaching writing.

Jeanne Simpson is Director of the Writing Center at Eastern Illinois University in Charleston, Illinois.

WORKS CITED

- Larson, Richard. "Invention Once More: A Role for Rhetorical Analysis." *College English* 32 (March 1971): 666.
- Pike, Kenneth. "Beyond the Sentence." *College Composition and Communication* 15 (October 1964): 129.
- Winterowd, Ross. *Contemporary Rhetoric: Conceptual Background with Readings*. New York: Harcourt, 1975.
- Young, Richard. "Invention: A Topographical Survey." In *Teaching Composition: Ten Bibliographic Essays*. Ed. Gary Tate. Fort Worth: TCU Press, 1976.
- Young, Becker, and Pike. *Rhetoric: Discovery and Change*. New York: Harcourt, 1970.

