danger, entangled by desire, and seduced by pleasure." We are also different in many ways. We move through experience by different routes. Some of us, for example, take our pleasure, our strength, and our energy from others, learning with them and from them, seeing with them and through them. Some of us, however, take our pleasure, our strength, and our energy from what's inside our headbones, turning our own experience over, looking at it this way and that, trying to see what sense we can make of it. Some say potatoes. Some say potahtoes. Let's *not* call the whole thing off. Neither party is enough; each can learn from the other. (I'll suggest parenthetically that the students who can learn most in collaborative settings may be those who think of themselves as citizens for whom writing will be at most an occasional task, while the smaller number, who think of themselves as writers, may need the hardship of working along.) At any rate, why should we imagine that any one conceptualization of writing would serve us all? We are too various and lovely for single visions to hold us.

I don't want to be misunderstood. I'm not opposed to either collaborative theory or collaborative practice. If you'll forgive my presumption, or even if you won't, I'll testify that I was the person responsible, some 15 years ago, for changing the name of our Freshman Composition 1 and 2 to Writing Workshop 1 and 2, and I believe that at the time I proposed the change, I understood its implications, as I do now and applaud ensuing developments. I was looking, I believe, for new strategies and alternatives. I guess I didn't know that the noun *workshop* would breed a verb, *to workshop,* that would become right action everywhere. Not long ago, I heard a colleague say that he had "workshopped" his paper with his students before coming to read it at a conference. O Lord, deliver us.

Why, I wonder, should we move all one way or all the other? I know it's more fun, and I'd propose that it's also more fruitful to move all this way *and* all that way, *and* maybe also the other way. If you worry about the youngster who needs company, think of the youngster who finds group writing and editing utterly distasteful and wasteful, who will *not* share himself or herself. Each may need the other. Each needs us.

It's not hard to believe if we will that when we write, we're always with someone and alone. We're never in language or using language alone. That's one of the things we should have learned from the concept of rhetorical invention. But don't deny them the absolute hurt or the absolute exhilaration of being absolutely alone. Perhaps we can some day surrender any notion of ownership in language and writing in favor of sharecropping the language. But even if you're sharecropping a 1200 acre farm with a group of peer plowers, there's a time to say, "I by God plowed these 80 acres all by myself."

It's not, after all, hard to believe contraries. We carry the reason and need for doing so around with us all of the time. An 18th century rabbi remarked: "Keep two truths in your pocket, and take them out according to the need of the moment. Let one be: 'For my sake was the world created.' and the other: 'I am dust and ashes.' " Today, I may be able to manage beautifully by myself, but tomorrow I may need your help.

WORKS CITED

Bruffee, Kenneth A. "Social Construction, Language, and the Authority of Knowledge." *College English* 48 (1986): 773-90.

Porter, James E. "Intertextuality and the Discourse Community." *Rhetoric Review* 5 (1986): 34-47.

A PROBABILITY THEORY OF COMMUNICATION AND THE FRESHMAN WRITER

Fredric G. Gale
University of South Florida

In this paper I am going to argue that we customarily teach writing by methods that are guaranteed to produce as little meaning as possible. Obviously, this heresy requires close examination and should not be made without some support. I intend to offer that support, first, by showing that some current pedagogies are more limited than they need to be, and second, by arguing the case for a completely new paradigm that allows us to have new ideas about how meaning is expressed in communications. The dominant pedagogy in the field of composition today is highly structured and process oriented, emphasizing problem solving and heuristics, as suggested by or implicit in the cognitivist approach of Linda Flower and Janet Emig, for example. Alternatively, we take a more traditionalist approach to teaching as in the work of Frank D'Angelo, who emphasizes the underlying structure of discourse.

THE INTERACTION OF THEORY AND PEDAGOGY

In particular, the pedagogies determined by cognitive process theory have been shown by empirical research, ably summarized by George Hillocks in his *Research on Written Composition,* to produce some gains in writing skill, depending of course upon how we measure gain in this context. I should point out, however, that many scholars have raised questions about the value of the research itself. In doing so, they cast doubt on the efficacy of pedagogies (Emig's and Flower's early work, for example) based on these foundations of positivist empirical research. There are too many critiques and rebuttals to review here, so I will mention only one of the most influential. It is by William Irmscher in a 1987 essay in *College Composition and Communication.* Irmscher writes:

> It is practically a given that one cannot say positively what causes improvement in writing effectiveness or whether a particular teaching approach is responsible for a change. (84)

Although there are many scholars who disagree with Irmscher, notably Hillocks himself, what is clear is that there is no consensus whether empirical research leads to better teaching of writing, and the same may be said for process-based pedagogies.

This general disagreement over theories and research leads many of us who teach writing to ask ourselves whether we even need an encompassing theory of what it means to write. After all, we have managed for hundreds of years without it, and yet we still produce able writers, often using trial and error — what Stephen North calls "folk knowledge"—to arrive at a productive teaching method. The reason why we need an encompassing underlying theory, according to North, is inscribed in the 1963 report of the NCTE Committee on the State of Knowledge about Composition. The Committee's role and its point of view had been stated by J.N. Hook, whom North quotes: "In teaching English we have relied too long on our best guesses" (16). The report of the Committee, entitled *Research on Written Composition,* complains that "the field as a whole is laced with dreams, prejudices, and makeshift operations" (5). In short, I think the present position is that many of us in the field agree we need to teach with some theory in mind in order to provide discipline and

direction to our teaching, but we do not agree on what that theory is and how it ought to relate to pedagogy. That plurality of opinion should not be viewed negatively, since it opens the door to the same kind of invention and intellectual refreshment that I am here advocating in the freshman writing classroom.

Although physical scientists claim their inquiry proceeds systematically, arising from their secure belief that the universe can be systematically described and its behavior predicted, this claim certainly does not apply to human discourse. As Thomas Kent persuasively argues, drawing upon the work of Donald Davidson and Jacques Derrida, the production and analysis of discourse—writing, speaking, reading and listening — cannot be "reduced to systemic processes and then taught in classrooms in some sort of codified manner" (25). The absence of a *conventional* link between a sign and its effect in the world creates a separation (or *"différance"* in Derrida's lexicon) that can never be bridged, because to do so would require a convention to explain the unexplainable: the way in which the same word can have different meanings at different times and places (Derrida's "iterability"). As Kent explains the problem and its solution, speaker and listener do not share a common language, they share only a "common hermeneutic strategy" (26).

This point of view, one that is widely held in the contemporary poststructural intellectual milieu, leads inevitably to Kent's recommendation of a dialogic theory of discourse—a theory, incidentally, whose roots lie in the sophistic philosophy of the fifth century B.C.—and in turn to a collaborative learning approach to teaching writing. Kent argues for a collaborative approach in which the teacher is another collaborator.

The problem with the collaborative approach, however, is that it tends to reinforce the ideologies that students bring with them into the classroom instead of opening their minds to cultural influences — making them more self-conscious about their attitudes. If we see the process of knowledge-making in terms of a historical conversation, then, as John Trimbur argues, we must recognize that it is "perpetually materializing itself in institutional forms," that is, reinstituting the pre-existing social hierarchies and preferments (607). Similarly, Greg Myers suggests that we need to see consensus "as the result of conflicts, not as a monolith" (166). Unlike Jürgen Habermas, however, Trimbur and Myers do not believe that removing ideological distortions from the conversation is possible or will result in "ideal speech," and neither offers a prescription for a classroom practice that will enable the classroom instructor to teach in antiseptic ideological sterility. Hence, although collaborative teaching offers benefits, students' attitudes about gender and class remain largely unaffected, and this is in opposition to one of the things we as composition instructors are trying to do: to teach our students to think independently, a task perhaps as important as teaching specific writing skills.

EXPLAINING INFORMATION THEORY

If we are to accomplish this goal of teaching independent thinking while we are teaching the skills of writing, we need a theoretical paradigm that is both easy to understand and that leads to a less structured pedagogy. I believe we need a paradigm that creates a less rule-bound environment and one that is more productive for freshmen writers than the immediate introduction of rules and heuristics. I am proposing that such a paradigm is available in the mathematical communications theory of Claude Shannon, set forth in his monograph, *The Mathematical Theory of Communication.* Shannon applies the principle of entropy, a concept that he took from physics, to the study of communications. Entropy is usually defined as the measure of unavailable energy in a given thermodynamic system, but it can also be defined as the lack of information about a system. The mathematical law that governs the operation of entropy states that a system always proceeds toward increasing entropy, that is, decreasing information. It is this very simple but powerful idea that Shannon applied to the study of communication.

At this point, readers may very well be wondering what all this has to do with teaching writing to undergraduates. In order to answer that question, I am going to fall back briefly on the computer metaphor for the human mind. If we view information as the useful data selected from the disordered mass of data that the universe constantly presents to us in the form of sounds, movements, smells, and so on, then we are always selecting some data and suppressing or ignoring some other data. We cannot pay attention to everything. Out of the mass of sensory data that a human being — all sensate living things for that matter — are subjected to at every waking minute, we choose to attend to and to process (or think about) some inputs instead of some others. Why we choose to pay attention to and process some data and not others depends, of course, on our individual goals and knowledge. Applying information theory to this processing of symbolic information that goes on in the human mind in the same way we would apply it in theoretical physics, gives us a system in which the information is constantly going out of language and has to be replaced.

We do not need to rely on Shannon for this; our own experience tells us this is so. For example, the more often a metaphor is used, the less novelty it has, and the less it tells us that we didn't already know. The first time a poet compared his love to a rose, the reader was made to think about this improbable comparison. But the metaphor has lost its force by now because of its familiarity and has become what we call a "dead metaphor." But what is the rationale for applying a physical theory to a humanist discourse? The answer is that it is the same as the rationale for applying any theory to any aspect of the physical universe: it is a very useful metaphor, which should be understood as being more descriptive than explanatory, contingent rather than truth defining. Richard Rorty has suggested the poet not the scientist or philosopher as the "paradigmatic human being," in other words, the paradigmatic thinker (4). It is the poet, Rorty believes, who produces the unusual way of looking at something and that the unusual viewpoint, conveyed in an unusual use of language, opens the door to a new avenue of discovery.

The important thing to understand for our purpose here is that the uses of the concept of entropy — both scientific and linguistic — involve the mathematics of probability.

The poststructural fiat is that no absolute truth can be arrived at through language; thus, as Jasper Neel says in *Plato, Derrida, and Writing,*

> If human (or divine) truth exists, humans by definition cannot know it, nor can any of their systems of communication convey it. Thus, humans must deal in probabilities, which, though never the closure of truth, allow arguments not only to be made but also to be evaluated. (206)

INCREASING THE FLOW OF INFORMATION

Here is the principal point I want to make: since the purpose of discourse is to communicate, whether the discourse is teaching or any other, then it succeeds in the degree to which it presents information that is selectively received, interpreted and evaluated, that offers cognitive choices. Only then does it create the maximum possibility of meaning for the participants in it. Neel argues that sophistry is "a way to make choices in a world of probability" (207). I take it to be axiomatic, and I believe Neel would agree, that the greater the number of choices the greater the probability of the meaningfulness of the propositions that survive the process of internal choice and public debate to arrive at what we call knowledge.

With this principle in mind, I suggest that the new paradigm of information theory has much to offer composition pedagogy. As used by Shannon, entropy means that information in a system increases as the system approaches maximum chaos. Shannon explains that information is produced only to the extent that the message received by the reader/listener is unexpected or improbable, or as Donald Murray says, when it creates "surprise." For example, tossing a coin is an act with only two possible outcomes of equal probability. On the other hand, if I send this cryptic message, "The Green Dolphin at three," I create numerous ambiguities and possibilities, and depending on the context in which that message is sent and received, it may have much or little meaning for the receiver. The amount of *information* the message has depends on the number of possibilities for interpretation. On the other hand, the *meaning* for the person receiving it depends on his/her knowledge, the context, and his/her interpretive strategy. Simply put, information is subject to mathematical quantification; meaning is not.

When we examine this idea in terms of pedagogy, what it suggests is that reducing structural constraints on writing in the early stages of invention increases the probability of meaningful communication simply because it increases the amount of information — the number of possible meanings — generated. Note, however, that I said, "in the early stages." Many pedagogies, even in the universities, are preoccupied with imposing order or with using heuristics that constrain the random production of information which should be the initial goal of writing. In limiting the number of improbable ideas and constructions of language that result from unrestrained writing, as I noted earlier, we limit the amount of information generated. A successful pedagogy, therefore, should recognize the consequences of the structuralist dictum that information, and therefore meaning, is produced by difference. Consequently, the purpose of such a pedagogy should be to encourage and train students to avoid as much as possible highly structured strategies at the *beginning* of writing tasks in order to increase the probability of producing something original and autonomous. Getting students to write something autonomous is an important goal of teaching. Neel argues that presenting student writers with a demand for a completed essay intended to generate a certain state of mind drives students into what Neel calls "anti-writing," writing that takes no position, that leaves the teacher with nothing to deconstruct because it says nothing while using the correct structure to do so. Similarly, William Covino in a 1988 essay insists student writers, unless driven to the contrary, produce writing that fails to engage their own intellects:

> Writing is identified with the "unexplored, unsettled, ambiguous, or confusing," so that our student writers — following Plato — practice writing as *engaged ignorance.* (120-21)

All writing instructors may not accept Neel's and Covino's view of the benefits of a rediscovery and redeployment of dialogic, but whatever discursive approach they accept, the most immediate objective of their instruction ought to be to "loosen up" students and allow them to create surprise for themselves, and perhaps for the instructor as well.

INFORMING PEDAGOGY

The approach recommended here differs significantly from the expressivist approach recommended by Peter Elbow, among others. The expressivist approach that Elbow proposes attempts to deal with the problem of getting the student to "move toward more personal, imaginative, or creative writing" (123). The emphasis is on the student discovering some internal truth that has been suppressed by social convention and the authority of the classroom instructor. Although this approach may be useful in some circumstances, my emphasis is on experimentation, not internal voyages of discovery. I do not want to remove the teacher from the classroom, I merely want to have him or her step back a little.

Like the poor of Victorian times, the difficulty of translating general theories of writing to classroom practices is always with us. Ellen Quandahl must "explore and plunder" Burke's texts for pedagogy. "Critical theories are acts," she writes, which must be carefully analyzed for similarities and differences if we are to find their "pedagogical 'motives'" (122). The problem of reading theory into pedagogy is one that deconstructionists are still struggling with, and without remarkable success. For example, Vincent Leitch, in "Deconstruction and Pedagogy," recognizes the importance of the "depropriation of pedagogical discourse." Leitch writes that out of the deconstructive way of thinking comes a strategic stance for pedagogy in which "nothing is ordained, natural, unalterable, monumental. Everything is susceptible to critique and transformation" (23).

Leitch offers no prescription for putting this strategic stance into action, of actually accomplishing the "depropriation of pedagogical discourse." However, in discussing the pedagogical approach of Roland Barthe, Leitch notes Barthe's affirmation that "the main job of deconstructive pedagogy is to suspend the oppressive forces of discursive language — to loosen, baffle, or lighten its power" (21).

Some instructors I have spoken to are appalled at the notion that students might turn in papers that are an undisciplined mishmash of disorganized reflections. I agree that such an event would be appalling. However, what I am suggesting is that after the loosening, baffling, lightening of the teacher's authoritarian grasp of the classroom discourse, and after the free play of the students' ideas, the students will still have plenty of opportunities in the *revision* process to organize their work in an accepted institutional mold, whether that be the academic, the corporate business, or the techno-scientific.

But how precisely does the instructor use the metaphor I have suggested in actually teaching freshmen to write? To some extent, how instructors apply theory — any theory — depends upon their students and their particular classroom objectives, objectives that may be dictated not only by the skills and abilities (and, yes, ideologies) of the students, but also the objectives of the colleges and universities where they teach. I am going to propose two ways that writing teachers might use Shannon's interesting notion of how information and meaning are produced. First, at the beginning of writing assignments instructors might simply suspend the usual techniques of teaching writing involving rules, methods of inquiry, heuristics and the like, and let the students literally free write for as long as necessary to allow the process of invention to work so that the students' own ideas begin to surface and they stop waiting for someone else to tell them *what* to write. Second, I suggest that the instructor use a simplified version of Shannon's theory to *explain* why the free writing is necessary. This is critically important, because young writers conditioned by the highly structured teaching they have been accustomed to in most high schools find it difficult to believe you mean it when you tell them you want them to free write. Once you explain the reason for the freewriting, most freshmen should be free enough from cultural restraints to actually write freely and without constant self-editing.

LIBERATING STUDENT WRITERS

I am aware that this method sounds a great deal like expressivist practice, from which I earlier distinguished it. I grant that it is — superficially, at least. However, there are two important differences. In the first place, I have emphasized that I would apply information theory-based pedagogy only in the early stages of writing. Instructors

must rely on their judgment when to turn the classroom from "loosening and baffling" to heuristics and more structured teaching. And in the second place, since the theory is different, the explanation to the students is different, and in my opinion much more readily assimilated. As I pointed out earlier, it is important that students understand why they are being asked what they are being asked to do.

In conclusion, I would like to note that information theory supports the use of liberatory writing pedagogies in the early stages of writing, most especially for beginning writers who tend to arrive at universities with a deeply ingrained belief in two ideas that current composition theory now suggests are very wrong. These are the idea that good writers write a single draft of a paper and never look at it again, and the idea that it is the product — specifically the ideal paper that the instructor has in mind when he or she gives the assignment — not the process that is important.

I would like to leave readers with a thought from James R. Kincaid's book on Tennyson, in which he quotes from George Eliot's *Middlemarch*:

> We do not expect people to be deeply moved by what is not unusual.... If we had a keen vision and feeling of all ordinary life, it would be like hearing the grass grow and the squirrel's heart beat, and we should die of that roar which lies on the other side of silence. (Kincaid 1)

Kincaid's point is that "when every life becomes tragic and the element of the special case is removed, human existence itself becomes ironic" (2). However tragic, anything repeated enough times must by familiarization become meaningless. Claude Shannon calls this process of familiarization by reiteration "redundancy." The greater the redundancy, says Shannon, the less the information in the message. For Kincaid, the essence of irony is the recognition of ourselves as victims of the trivial, trapped and released into what he calls the "illimitable inane." If we do not want to trap our students in the illimitable inane, or in what Neel calls "anti-writing," I suggest we must begin by taking some of the constraints away and letting beginning writers write.

WORKS CITED

Covino, William. "Defining Advanced Composition: Contributions from the History of Rhetoric." *Journal of Advanced Composition* 8 (1988): 113-22.

D'Angelo, Frank. "Tropics of Arrangement: A Theory of *Dispositio*." *Journal of Advanced Composition* 10 (1990):101-9.

Elbow, Peter. *Writing Without Teachers*. Oxford: Oxford UP, 1973.

Emig, Janet. "The Composing Processes of Twelfth Graders." *NCTE Research Report No. 13*. Urbana: NCTE, 1971.

Flower, Linda, and John Hayes. "A Cognitive Process Theory of Writing." *College Composition and Communication* 31 (1980): 365-87.

Hillocks, George, Jr. *Research on Written Composition*. Urbana: NCTE, 1986.

Hook, J.N. "The Importance of the Conference to Project English." *Needed Research in the Teaching of English*. Ed. Erwin P. Steinberg. Washington: Government Printing Office, 1963.

Irmscher, William. "Finding a Comfortable Identity." *College Composition and Communication* 38 (1987): 81-7.

Kent, Thomas. "Paralogic Hermeneutics and the Possibilities of Rhetoric." *Rhetoric Review* 8 (1989): 24-42.

Kincaid, James R. *Tennyson's Major Poems: The Comic and Ironic Patterns*. New Haven: Yale UP, 1975.

Leitch, Vincent. "Deconstruction and Pedagogy." *Writing and Reading Differently*. Ed G. Douglas Atkins and Michael Johnson. Lawrence: UP of Kansas, 1985. 14-26.

Myers, Greg. "Reality, Consensus, and Reform in the Rhetoric of Composition Teaching." *College English* 48 (1986): 154-74.

Neel, Jasper. *Plato, Derrida, and Writing*. Carbondale: Southern Illinois UP, 1988.

North, Stephen. *The Making of Knowledge in Composition*. Upper Montclair, NJ: Boynton/Cook, 1987.

Quandahl, Ellen. "What Stands for What: Kenneth Burke on Spirit and Sign." *Reclaiming Pedagogy*. Ed. Patricia Donahue and Ellen Quandahl. Carbondale: Southern Illinois UP, 1989. 113-27.

Rorty, Richard. "The Contingency of Language." *London Review of Books* 17 April 1986: 3-6.

Shannon, Claude E., and Warren Weaver. *The Mathematical Theory of Communication*. Urbana: U of Illinois P, 1949.

Trimbur, John. "Consensus and Difference in Collaborative Learning." *College English* 51 (1989): 602-16.

WHAT COMPOSITION TEACHERS NEED TO KNOW ABOUT WRITING CENTERS

Suzanne Powers
West Chester University

My Freshman Composition students filed out of my classroom, tossing their initial writing samples on my desk with relief written on their faces. One student remained motionless in her seat. I had noticed her for the past 45 minutes, recognizing visible signs of writing anxiety: flushed face and several minutes of staring at the paper followed by a brief flurry of writing; long periods of chewing on her pencil and looking out the window; a frequent crumpling and ripping of paper to the accompaniment of sighs and groans. As the room slowly emptied, she rose from her chair, lingering by her seat long enough to ensure we were alone. Then she approached my desk to submit to me a paper with two sentences written on it — her entire output for the period. With a look that mingled embarrassment and fear, Sondra apologized for her work, stating that she had problems writing under pressure. During our ensuing conversation, she also confessed that she had always had problems "putting ideas down on paper," although working with numbers came easily to her. She had already gone through a summer course in Developmental English, which she had passed. While she could "spot errors in sentences," her problems with organizing "all the stuff that dances around in my brain" hampered her writing under any circumstances and paralyzed her under the pressure of time constraints.

Clearly, here was a student who would require some extra attention, and I wasn't sure how much I could offer her. As a newly assigned Teaching Assistant re-entering a graduate program after a substantial hiatus from teaching, I didn't have much time to spare in an already overloaded schedule. After Sondra left, I remembered the flyer I had recently received from the university's writing center. The center identified itself briefly as a recently established facility operating under the supervision of the English department and staffed by graduate teaching assistants. As a fledgling center, its statement of purpose was brief. It offered tutorial help with students experiencing writing difficulties and suggested to composition teachers that they refer any students that might benefit from such help. Hastily digging through an overflowing briefcase to find it, I reread its brief message, which seemed to hold out hope for Sondra and relief for me. After the next class I informed Sondra of the writing center's availability for tutorial help and suggested she use it as a weekly lab to work on the writing problem we had discussed. She seemed relieved to be offered a way to recover from failure and readily agreed to do so.