Cognition, Convention, and Certainty:
What We Need to Know about Writing *

by
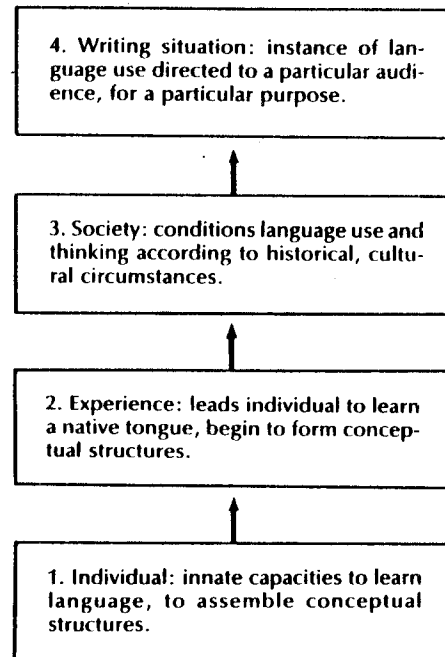Patricia Bizzell
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What do we need to know about writing? Only recently have we needed to ask this question, and the asking has created composition studies. We have needed to ask it because of changing circumstances in the classroom, and our answers will be put to the test there with a speed uncommon in other academic disciplines. The current theoretical debate over how to go about finding these answers, therefore, is not merely an empty exercise. Students' lives will be affected in profound ways.

This profound effect on students is the more to be expected because of the terms in which the "writing problem" has appeared to us — terms that suggest that students' thinking needs remediation as much as their writing. Seeing the problem this way makes it very clear that our teaching task is not only to convey information but also to transform students' whole world view. But if this indeed is our project, we must be aware that it has such scope. Otherwise, we risk burying ethical and political questions under supposedly neutral pedagogical technique. Some of our answers to the question of what we need to know about writing are riskier in this regard than others.

We now see the "writing problem" as a thinking problem primarily because we used to take our students' thinking for granted. We used to assume that students came to us with ideas and we helped them put those ideas into words. We taught

4. Writing situation: instance of language use directed to a particular audience, for a particular purpose.

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3. Society: conditions language use and thinking according to historical, cultural circumstances.

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2. Experience: leads individual to learn a native tongue, begin to form conceptual structures.

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1. Individual: innate capacities to learn language, to assemble conceptual structures.

Figure 1. An inner-directed model of the development of language and thought writing. Arrows indicate direction of individual's development, beginning with innate capacities and issuing finally in particular instances of use.

correct syntax, which we can then ask the students to practice until they internalize the patterns. Sentence-combining exercises offer such pattern practice.[5]

Once students are capable of cognitively sophisticated thinking and writing, they are ready to tackle the problems of a particular writing situation. These problems are usually treated by inner-directed theory as problems of audience analysis. Audience analysis seeks to identify the personal idiosyncracies of readers so that the writer can communicate her message to them in the most persuasive form. The changes made to accommodate an audience, however, are not seen as substantially altering the meaning of the piece of writing because that is based in the underlying structure of thought and language.[6]

In contrast, outer-directed theorists believe that universal, fundamental structures can't be taught; thinking and language use can never occur free of a social context that conditions them (see Figure 2). The outer-directed theorists believe that teaching style from model essays failed not because we were doing the wrong thing but because we weren't aware of what we were doing. Teaching style from model essays, in this view, is teaching the discourse conventions of a particular community — in this case, a community of intellectuals including, but not limited to, academics. But because we were unaware that we were in a discourse community, we taught the conventions as formal structures, as if they were universal patterns of thought and language. What we should do is to teach students that there are such things as discourse conventions.

The outer-directed theorists are sceptical about how we can obtain knowledge of what thinking and language-learning processes are innate. Moreover, they would argue that the individual is already inside a discourse community when she learns a native tongue, since the infant does not learn some generalized form of language but rather the habits of language use in the neighborhood, or the discourse community into which she is born.[7] Since this discourse community already possesses traditional, shared ways of understanding experience, the infant doesn't learn to conceptualize in a social vacuum, either, but is constantly being advised by more mature community members whether her inferences are correct, whether her groupings of experiential data into evidence are significant, and so on.[8] Some

style, explaining the formal properties of model essays and evaluating students' products in the light of these models. Some students came to us with better ideas than others, but these were simply the brighter or more mature students. All we could do for the duller, more immature students was to hope that exposure to good models might push them along the developmental path.[1]

Over the last twenty years, however, we have encountered in our classrooms more and more students whose ideas seem so ill-considered, by academic standards, that we can no longer see the problem as primarily one of expression. Rather, we feel, "Now I have to teach them to think, too!" And at the same time, students have so much trouble writing Standard English that we are driven away from stylistic considerations back to the basics of grammar and mechanics. Teaching style from model essays has not prepared us to explain or repair these students' deficiencies. The new demands on us as teachers can only be met, it seems, by a reconsideration of the relationship between thought and language. We are pretty much agreed, in other words, that what we need to know about writing has to do with the thinking processes involved in it.

Composition specialists generally agree about some fundamental elements in the development of language and thought. We agree that the normal human individual possesses innate mental capacities to learn a language and to assemble complex conceptual structures. As the individual develops, these capacities are realized in her learning a native tongue and forming thought patterns that organize and interpret experience. The mature exercise of these thought and language capacities takes place in society, in interaction with other individuals, and this interaction modifies the individual's reasoning, speaking, and writing within society. Groups of society members can become accustomed to modifying each other's reasoning and language use in certain ways. Eventually, these familiar ways achieve the status of conventions that bind the group in a discourse community, at work together on some project of interaction with the material world. An individual can belong to more than one discourse community, but her access to the various communities will be unequally conditioned by her social situation.

If composition specialists generally agree about this description, however, we disagree about what part of it is relevant to

composition studies. One theoretical camp sees writing as primarily inner-directed, and so is more interested in the structure of language-learning and thinking processes in their earliest state, prior to social influence. The other main theoretical camp sees writing as primarily outer-directed, and so is more interested in the social processes whereby language-learning and thinking capacities are shaped and used in particular communities. In the current debate, each camp seeks to define what we *most* need to know about writing.

Inner-directed theorists seek to discover writing processes that are so fundamental as to be universal. Later elaborations of thinking and language-using should be understood as outgrowths of individual capacities (see Figure 1). Hence, inner-directed theorists are most interested in individual capacities and their earliest interactions with experience (locations # 1 and 2, Figure 1). The inner-directed theorists tend to see the kinds of reasoning occurring at all four locations as isomorphic — all the same basic logical structures.[2] They also tend to see differences in language use at different locations as superficial matters of lexical choice; the basic structure of the language cannot change from location to location because this structure is isomorphic with the innate mental structures that enabled one to learn a language, and hence presumably universal and independent of lexical choice. Nevertheless, looking for an argument to justify teaching one form of a language, some inner-directed theorists treat one set of lexical choices as better able than others to make language embody the innate structures. Insofar as these better choices fall into the patterns of, for example, a "standard" form of a native tongue, they make the standard intellectually superior to other forms.[3]

Inner-directed theorists further claim, in a similar paradox, that the universal, fundamental structures of thought and language can be taught. If our students are unable to have ideas, we should look around locations # 1 and 2 for structural models of the mental processes that are not happening in these students' minds. Once we find these models, we can guide students through the processes until the students' own thought-forming mechanisms "kick on" and they can make concepts on their own. An heuristic procedure is often presented as such a process model.[4] Similarly, if our students are unable to write English, we should look in the same locations for patterns of

outer-directed theorists would go so far as to say that the lines of development of thought and language merge when the native tongue is learned, since one learns to think only by learning a language and one can't have an idea one doesn't have a word for.[9]

Outer-directed theorists would argue that we have no reason to believe, and no convincing way to determine, that our students can't think or use language in complex ways. It's just that they can't think or use language in the ways we want them to. To help them, then, we should be looking for ways to explain discourse conventions. We might find patterns of language use and reasoning that are common to all members of a society, patterns that are part of the set of conventions of every discourse community within the society. Conventions that are common in the society could be used as bridges between different discourse communities — for example, to ease the transition into the academic discourse community for students who come from discourse communities far removed from it.[10]

The staple activity of outer-directed writing instruction will be analysis of the conventions of particular discourse communities (see Figure 2). For example, a major focus of writing-across-the-curriculum programs is to demystify the conventions of the academic discourse community.[11] Discourse analysis goes beyond audience analysis because what is most significant about members of a discourse community is not their personal preferences, prejudices, and so on, but rather the expectations they share by virtue of belonging to that particular community. These expectations are embodied in the discourse conventions, which are in turn conditioned by the community's work. Audience analysis aims to persuade readers that you're right; it is to dress your argument in flattering apparel. Discourse analysis aims to enable you to make that argument, to do intellectual work of significance to the community, and hence, to persuade readers that you are a worthy co-worker.[12]

Answers to what we need to know about writing will have to come from both the inner-directed and the outer-directed theoretical schools if we wish to have a complete picture of the composing process. We need to explain the cognitive and the social factors in writing development, and even more important, the relationship between them. Therefore, we should

2. Society: aggregate of discourse communities that all share certain patterns of language-using, thinking conditioned by historical, cultural circumstances.
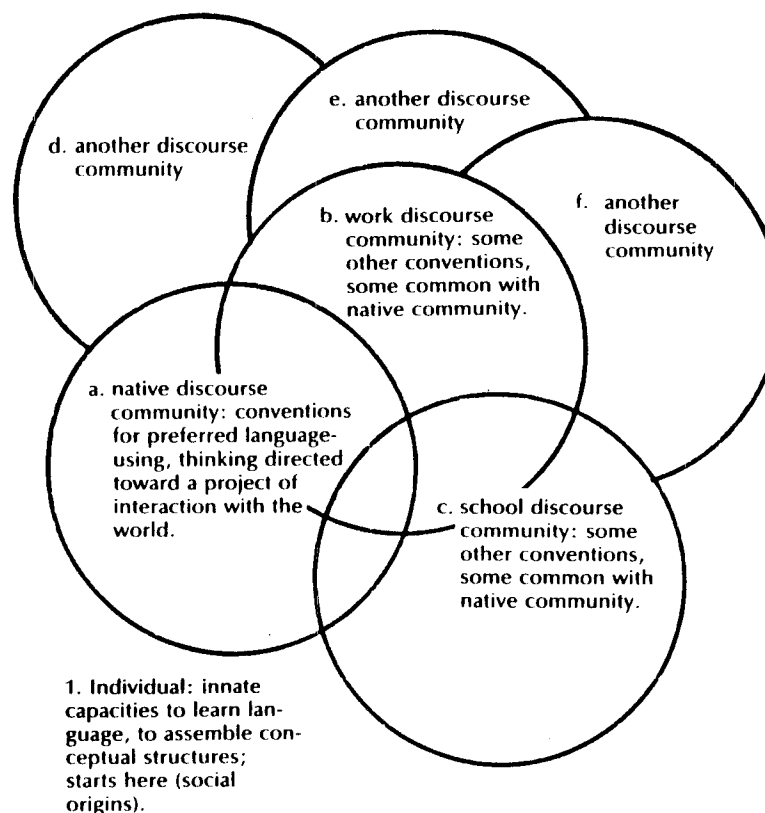
Figure 2. An outer-directed model of the development of language and thought. Note that innate capacities have no expression outside discourse communities and that society is made up entirely of discourse communities. Individual has unequal access to different communities. Direction of development is outward from native community.

think of the current debate between the two schools as the kind of fruitful exchange that enlarges knowledge, not as a process that will lead to its own termination, to a theory that silences debate. I would like to show here how one inner-directed theoretical model of writing can be enlarged by an outer-directed critique.

The inner-directed school has been distinguished by its fostering of research on writing that follows scientific methodology, and two of the most important researchers are Linda Flower, a professor of English at Carnegie-Mellon University, and John R. Hayes, a professor of psychology at the same school. They have been conducting research for about six years on what people do when they compose. The goal of this research is to formulate "A Cognitive Process Theory of Writing," according to the title of their recent College Composition and Communication essay, under review here." Their work's roots in cognitive psychology can be seen in Cognitive Processes in Writing, also reviewed here, the proceedings of a 1978 symposium at Carnegie-Mellon." Flower and Hayes see composing as a kind of problem-solving activity; what interests them are the "invariant" thought processes called into play whenever one is confronted with a writing task. In other words, they assume that although each writing task will have its own environment of purposes and constraints, the mental activity involved in juggling these constraints while moving to accomplish one's purposes does not change from task to task. This problem-solving thought process is the "cognitive process of writing."

In Figure 1, location 2 is approximately where Flower and Hayes would place what they are studying. The cognitive process is triggered by what goes on at location 4 (imposition of a particular writing task); the process may also be shaped by attitudes absorbed at location 3 and modified in the light of success or failure in problem-solving at location 4. Not everyone uses the same cognitive process in writing, some processes are more successful than others, and one's process can be consciously or unconsciously modified. Flower and Hayes seek to describe a model of the most complete and successful composing process they can find through their research.

Protocol analysis is their principle research tool. First, the researcher asks a person (the test subject) to say aloud whatever she is thinking while solving a problem posed by the researcher. For example, Flower and Hayes have asked English teachers to

describe what goes through their minds while composing an article describing their jobs for the readers of Seventeen magazine. The transcription of what the subject says is the protocol. Next, the researcher scans the protocol looking in the subject's self-description for features predicted by the theory of cognitive activity guiding the research. Flower and Hayes have looked for descriptions of behavior common to current accounts of the writing process, such as "organizing" and "revising." In analyzing the protocol, the researcher must bridge gaps in the protocol caused by the subject's forgetting to mention some of her problem-solving steps. The theory is tested by its ability to bridge these gaps as well as by the appearance in the protocol of features it predicts (Flower and Hayes explain their procedure in "Identifying the Organization of Writing Processes," Cognitive Processes, pp. 3-30).

Through their research, Flower and Hayes have been gradually refining a process model of composing (see "Process Theory," p. 370). Its most current version divides the writing situation into three main parts: one, the "task environment," subdivided into "rhetorical problem" and "text produced so far"; two, the "writing process," subdivided into "reviewing" (further subdivided into "revising" and "evaluating"), "translating," and "planning" (further subdivided into "generating," "goal-setting," and "organizing"); and three, the "writer's long-term memory." The task environment is outside the writer, the writing process is inside the writer, and long-term memory can be both inside and outside — that is, in the writer's mind or in books. Task environment and memory are seen as information sources upon which the writer draws while performing the composing activities grouped under "writing process."

This model is hierarchical and recursive rather than sequential in structure; that is, Flower and Hayes do not see the writing process as an invariant order of steps. What is invariant, in their view, is the structural relation of the steps. A writer can "access" memory or task environment, and switch from one composing subprocess to another, at any time while the writing task is being completed; an entity in the model called "monitor" executes these switches. This model does not tell us how to proceed through the composing process, but only that in pro-

ceeding, there are certain subprocesses we must include if we want to compose successfully.

Flower and Hayes see this model as resolving current theoretical disagreements about what guides composing. Beginning their "Process Theory" essay with summaries of different but compatible views on composing, Flower and Hayes seem to suggest that while other theorists are like blind men describing an elephant, in the Flower-Hayes model we see the whole beast — or at least we can infer its shape when the porpoise occasionally breaks water, to switch to the animal metaphor Flower and Hayes use (*Cognitive Processes*, pp. 9-10). It is the hierarchical and recursive structure of this model, in Flower and Hayes's view, that makes it superior to other theorists' work and able to control and reconcile other theorists' work.

The Flower-Hayes model may, however, strike many readers as a surprising mix of daunting complexity and disappointing familiarity. When we finally get the new terminology straight in our minds, we find in the model's elaborate cognitive processes just the same writing activities we have been debating about. Consider, for example, the Flower-Hayes model's "monitor," the entity that executes switches between composing subprocesses. On the one hand, the term, borrowed from computer programming, is rather intimidating, especially if we imagine that it names something we didn't know was there before. On the other hand, we find out eventually that "monitor" means simply "the writer's mind making decisions." Borrowing a term from programming masks the question of *why* the writer makes certain decisions. The Flower-Hayes model consistently presents a description of *how* the writing process goes on as if it were capable of answering questions about *why* the writer makes certain choices in certain situations. While it is useful for us to have an overview of the "how," such as the Flower-Hayes model offers, we should not suppose that this will enable us to advise students on difficult questions of practice. To put it another way, if we are going to see students as problem-solvers, we must also see them as problem-solvers situated in discourse communities that guide problem definition and the range of alternative solutions. Outer-directed theory can thus shore up the Flower-Hayes model in two critical areas, planning and translating.

"Translating," according to Flower and Hayes, is "the process

of putting ideas into visible language" ("Process Theory," p. 373). They treat written English as a set of containers into which we pour meaning, regardless of how meaning exists before the pouring. The containers may not seem to be in convenient sizes at first — we have to struggle with their "constraints" or "special demands" — but once we internalize these, written language as a factor in the composing process essentially disappears. Writing does not so much contribute to thinking as provide an occasion for thinking — or, more precisely, a substrate upon which thinking can grow. Beyond minor matters of spelling, diction, and so on, we do not have to worry about how students are going to find out about the features of written language because these are already innate.

"Translating," then, remains the emptiest box in the Flower-Hayes model, while "planning" becomes the fullest. During planning, the writer generates and organizes ideas before struggling to put them into words. Language itself is not seen as having a generative force in the planning process, except insofar as it stands as a record of the current progress of the writer's thinking in "text produced so far." Planning processes, therefore, have to be elaborated because they are all the writer has to guide her toward a solution to the particular writing problem. What's missing here is the connection to social context afforde. ' recognition of the dialectical relationship between thought and language. We can have thoughts for which we have no words, I think, but learning language, though it doesn't exactly teach us to think, teaches us what thoughts matter. To put it another way, we can *know* nothing but what we have words for, if knowledge is what language makes of experience.

Vygotsky has characterized this dialectical relationship of thought and language as the development of "verbal thought." At first, language use and thinking develop separately in the child. But eventually the child comes to understand that language not only names ideas but develops and evaluates them, and then, *"the nature of the* [child's] *development itself changes*, from biological to historical."[5] The child's linguistic and cognitive development culminates in "verbal thought," which "is not a natural, innate form of behavior but is determined by a historical-cultural process and has specific properties and laws that cannot be found in the natural forms of

thought and speech" (Vygotsky, p. 51). To illustrate the mature relationship between thought and language, Vygotsky uses situations that are strongly context-bound, such as conversations between lovers or among actors in a play.

Vygotsky's analysis suggests that a model that separates planning and translating will not be fruitful for describing adult language-using because these activities are never separate in adult language-using. There is, to be sure, a basis in the human organism for language-using behavior; Vygotsky calls it "biological," Flower and Hayes call it "cognitive." But while this basis is a legitimate object of study in its own right, even the most complete anatomy of it will not explain adult language-using because, as Vygotsky emphasizes, with the advent of verbal thought the very nature of language-using processes changes. The writing process can only take place after this change occurred. Vygotsky's analysis would suggest, then, not only that we should not separate planning and translating but also that we should understand them as conditioned by social context.

If we accept Vygotsky's analysis as indicating the need to fill in Flower and Hayes's empty "translating" box, then to look for knowledge to fill it, we can turn to sociolinguistics. This discipline seeks to analyze the ways thinking and language-using are conditioned by social context. In studying writing, sociolinguists look for the verbal ties with context. They argue that certain genres, implying certain relations between people, are typical of certain situations. Furthermore, readers do not perceive a text as hanging together logically unless its connections with the social context are as clear as the markers of internal coherence.[16] Therefore, for example, students who struggle to write Standard English need knowledge beyond the rules of grammar, spelling, and so on. They need to know: the habitual attitudes of Standard English users toward this preferred form; the linguistic features that most strongly mark group identity; the conventions that can sometimes be ignored; and so on. Students who do know the rules of Standard English may still seem to academics to be writing "incorrectly" if the students are insensitive to all these other features of language use in the community — then the students are using academic language in unacademic ways.[17]

Composition specialists can learn from sociolinguists to avoid what George Dillon has called the "bottom-to-top" fallacy: the notion that a writer first finds meaning, then puts it into words, then organizes the words into sentences, sentences into paragraphs, etc.[18] Dillon argues, rather, that it is the sense of her whole project that most stimulates a writer's thinking and guides her language use. The discourse gives meaning to the words and not vice versa. For example, such phrases as "it seems to me" and "these results suggest . . ." do not themselves tell us how to interpret such a pattern of qualifying statements. When we encounter these words in a student paper, we are likely to chide the writer for covering up poor research or for being unduly humble. When we encounter the very same words in a scholarly paper, we simply take them to mean that the writer is establishing a properly inquiring persona (see Dillon, p. 91).

Even something as cognitively fundamental as sentence structure takes on meaning from the discourse in which it is deployed. For this reason, for example, revising rules are notoriously unhelpful: they always require further knowledge in order to be applied. We can't "omit needless words" unless we have some additional criteria for "needlessness." We can't even "avoid passive voice" all the time. Passive voice might be preferred by a writer who wants to head her sentence with words that tie it closely to the previous sentence, especially if the kind of discourse she is producing places a high value on markers of internal coherence.[19]

"Putting meaning into words," then, cannot be seen as a mechanical process of finding the right size containers. Instead, with a form of discourse we take on a whole range of possibilities for making meaning. Language-using in social contexts is connected not only to the immediate situation but to the larger society, too, in the form of conventions for construing reality. This relationship between language and world view has prompted M.A.K. Halliday to argue that "the problem of educational failure is not a linguistic problem, if by linguistic we mean a problem of different urban dialects"; at bottom, "it is a semiotic problem, concerned with the different ways in which we have constructed our social reality, and the styles of meaning we have learned to associate with the various aspects of it."[20] In short, educational problems associated with language use should be understood as difficulties with joining an unfamiliar

discourse community.

To look at writing as situated in a discourse community is to blur over the lines between translating and planning in the Flower-Hayes model. Finding words is not a separate process from setting goals. It *is* setting goals, because finding words is always a matter of aligning oneself with a particular discourse community. The community's conventions will include instructions on a preferred form of the native tongue, a specialized vocabulary, a polite technique for establishing persona, and so on. To some extent, the community's conventions can be inferred from analyzing the community's texts. But because the conventions also shape world view, the texts can never be an adequate index of community practice.

Therefore, we should not think of what I am calling a discourse community simply as a group who have decided to abide by certain language-using rules. Rather, we should see the group as an "interpretive community," to use Stanley Fish's term, whose language-using habits are part of a larger pattern of regular interaction with the material world.[21] Because this interaction is always an historical process, changing over time, the community's conventions also change over time. This is not to say that the community's interpretive conventions are arbitrary or that they totally determine individual behavior. They are not arbitrary because they are always conditioned by the on-going work in the community and sanctioned by consensus. At any given time, community members should have no trouble specifying that some kinds of thinking and language-using are obviously appropriate to the community and some are not. Changes in conventions can only define themselves in terms of what is already acceptable (even if such definition means negation of the currently acceptable).

At the same time, some kinds of thinking and language-using are not obviously either appropriate or inappropriate; they are open to debate. An individual who abides by the community's conventions, therefore, can still find areas for initiative — adherence is slavish adherence only for the least productive community members. These "open" areas may be the unsolved problems of the community, experiences that remain anomalous in the community's interpretive scheme, or they may be areas the community has never even considered dealing with. An individual may, however, bring one of these open areas into

the range of the community's discourse if her argument for an interpretation of it is sufficiently persuasive in terms the community already understands. As an example of this activity, Mina Shaugnessy has cited Freud's introductory lectures on psychoanalysis.[22]

Producing text within a discourse community, then, cannot take place unless the writer can define her goals in terms of the community's interpretive conventions. Writing is always already writing for some purpose that can only be understood in its community context. Fish has argued not only that the community of literary critics proceeds in this way but furthermore, that the main business of English studies should be to investigate the nature of discourse communities (see Fish, pp. 338-55). It is exactly this sort of analysis that the Flower-Hayes model lacks when trying to explain planning. For Flower and Hayes, "generating" (a subdivision of planning) means finding ideas by using heuristics, not by responding with individual initiative to the community's needs. "Organizing" (another subdivision) means fitting ideas into the range of logical structures available from human thought processes, not finding out what's reasonable in terms of a community's interpretive conventions. In other words, all that's needed for generating and organizing is access to the invariant, universal structures of human cognition (for a critique of this assumption, see Dillon, pp. 50-82).

The weakness of this approach is most apparent in Flower and Hayes's treatment of "goal-setting." They correctly identify goal-setting as the motor of the composing process, its most important element, but in their model they close it off in the most subordinate position (a subdivision of a subdivision of the writing process). In the "Process Theory" essay, Flower and Hayes elaborate their description into "process goals" (directions for the writing process) and "content goals" (directions for affecting the audience), and they also classify goals in terms of levels of abstraction (see "Process Theory," p. 377). Their model's structure cannot order this multifarious account.

Flower and Hayes end the "Process Theory" essay with analysis of a "good" writer's protocol, aimed to explicate the process of goal-setting. The writer is having trouble deciding how to tell *Seventeen* readers about his job as a college English teacher until he decides that many girls think of English as a "tidy" and

"prim" subject and that "By God I can change that notion for them." He goes on to frame an introduction that recounts a "crazy skit" his 101 class liked on the first day of school ("Process Theory," pp. 383, 385). Of his "By God" moment of decision, Flower and Hayes say that "he has regenerated and elaborated his top-level goals," and "this consolidation leaves the writer with a new, relatively complex, rhetorically sophisticated working goal, one which encompasses plans for a topic, a persona, and an audience" (p. 383).

Notice the verbs in this explanation: "regenerating" and "elaborating" goals "leave" the writer with regenerated ("new") and elaborated ("complex") goals — which "encompass" what he needs to know to go on writing. The action described here has no force as an explanation not only because it is circular (regeneration causes regeneration), but also because we still don't know where the new goals come from. Flower and Hayes suggest that going through a process simply "leaves" one with the goals, as if the process itself brought them into being. Upon arrival, the goals are found to contain ("encompass") the necessary knowledge — but we still don't know how that knowledge got there.

The Seventeen article writer's process of goal-setting, I think, can be better understood if we see it in terms of writing for a discourse community. His initial problem (which seems to be typical of most subjects confronted with this writing task) is to find a way to include these readers in a discourse community for which he is comfortable writing. He places them in the academic discourse community by imagining the girls as students ("they will all have had English, " p. 383). Once he has included them in a familiar discourse community, he can find a way to address them that is common in the community: he will argue with them, putting a new interpretation on information they possess in order to correct misconceptions (his "By God" decision). In arguing, he can draw on all the familiar habits of persuasion he has built up in his experience as a teacher (his "crazy skit" decision). He could not have found a way to write this article if he did not have knowledge of a discourse community to draw on.

The Flower-Hayes model does, of course, include a "long-term memory" where such knowledge could be stored, and Flower and Hayes even acknowledge its importance:

> Sometimes a single cue in an assignment, such as "write a persuasive. . . ," can let a writer tap a stored representation of a problem and bring a whole raft of writing plans into play. (p. 37l)

A "stored representation of a problem" must be a set of directions for producing a certain kind of text — what I have been calling discourse conventions. I would argue that the writer doesn't just tap this representation sometimes but every time a writing task is successfully accomplished. Flower and Hayes give this crucial determinant of text production very off-hand treatment, however. They seem to see writing in response to discourse conventions as response to "semi-automatic plans and goals" that contrast with "goals writers create for a particular paper" (p. 381). Evidently they are seeing discourse conventions simply as rules to be internalized, similar to their treatment of the "constraints" of written English. This reduction of conventions to sets of rules is also suggested by their choice of the limerick as a good example of a "genre" (p. 379).

Hence, although Flower and Hayes acknowledge the existence of discourse conventions, they fail to see conventions' generative power, which is to say that their notion of conventions does not include the interpretive function for which I have been arguing. This neglect of the role of knowledge in composing makes the Flower-Hayes theory particularly insensitive to the problems of poor writers.

> Poor writers will frequently depend on very abstract, undeveloped top-level goals, such as "appeal to a broad range of intellect," even though such goals are much harder to work with than a more operational goal such as "give a brief history of my job." Sondra Perl has seen this phenomenon in the basic writers who kept returning to reread the assignment, searching, it would seem, for ready-made goals, instead of forming their own. Alternatively, poor writers will depend on only very low-level goals, such as finishing a sentence or correctly spelling a word. They will be, as Nancy Sommers's student revisers were, locked in by the myopia in their own goals and criteria. (p. 379)

The implication here seems to be that cognitive deficiency keeps poor writers from forming their own goals, keeps them

locked in the myopia of goals appropriate to a much earlier stage of cognitive development. The physical image of poor eyesight is revealing of Flower and Hayes's assumptions about the innate sources of writing problems.

I think these students' difficulties with goal-setting are better understood in terms of their unfamiliarity with the academic discourse community, combined, perhaps, with such limited experience outside their native discourse communities that they are unaware that there is such a thing as a discourse community with conventions to be mastered. What is underdeveloped is their knowledge of the ways experience is constituted and interpreted in the academic discourse community and of the fact that all discourse communities constitute and interpret experience. Basil Bernstein has shown that British working-class students are not cognitively deficient but that, first, their native discourse community's conventions are very different from school conventions, and, second, their lack of a variety of speech partners makes it hard for them to see their problems in school as problems of learning to relate to new speech partners (or an unfamiliar discourse community).[21]

Such students may be unable to set a more operational goal because they do not know the conventions of language-using that define such goals as, for example, a "history." Without such knowledge, they may fall back on goals that worked in the past — perhaps in grammar school where close attention to spelling and grammar was rewarded. Or they may sensibly try to enlarge their knowledge by rereading the assignment, seeking clues to the conventions of this new discourse community or those "ready-made goals" without which no writing gets accomplished. Of course, their search of the assignment may be fruitless if the teacher has not been sufficiently explicit about her expectations. Academics are, perhaps, too ready to assume that such operations as "describe" or "analyze" are self-evident, when in fact they have meanings specific to the academic discourse community and specific to disciplines within that community.

To help poor writers, then, we need to explain that their writing takes place within a community, and to explain what the community's conventions are. Another way of putting this

would be to borrow Thomas Kuhn's terminology and explain that "puzzle-solving" writing can go on only under the direction of an established "paradigm" for community activity.[24] As Charles Bazerman's work has shown, the writer within the academic community knows how to relate her text to "the object under study, the literature of the field, the anticipated audience, and the author's own self" via discipline-specific conventions governing "lexicon," "explicit citation and implicit knowledge," "knowledge and attitudes the text assumes that the readers will have," and the "features" of a "public face" (Bazerman, pp. 362-63).

The Flower-Hayes model of writing, then, cannot alone give us a complete picture of the process. We might say that if this model describes the *form* of the composing process, the process cannot go on without the *content* which is knowledge of the conventions of discourse communities. In practice, however, form and content cannot be separated in this way, since discourse conventions shape the goals that drive the writing process. To let the model stand alone as an account of composing is to mask the necessity for the socially situated knowledge without which no writing project gets under way. The problems of letting this model stand alone can be seen in the pedagogy emerging from Flower and Hayes's work. They are inclined to treat the model itself as an heuristic:

> Our model is a model of competent writers. Some writers, though, perhaps to their disadvantage, may fail to use some of the processes. (*Cognitive Processes*, p. 29)

Flower has recently published a textbook that aims to guide students through a complete repertoire of composing strategies.[25]

The difficulty with the textbook's view of writing as problem-solving is that it treats problem-solving as an unfiltered encounter with the underlying structure of reality — "the act of discovering key issues in a problem that often lie hidden under the noisy details of the situation" (p. 21). Having defined a problem, one should: first, "fit it into a category of similar problems"; next, decide on a possible course of action against the problem ("make the problem definition more operational"); "tree" the problem or analyze its parts into a hierarchical structure;

"generate alternative solutions"; present a conclusion, which weighs alternatives and acknowledges assumptions and implications of the conclusion (see pp. 21-26). But *first*, how does one define a problem? Although Flower says that "problems are only problems for someone," she doesn't talk about this necessary link between problem definition and interpretive communities (p. 21). Rather, it seems that we will *find* (not make) the problem if we strip away the "noisy details of the situation." I would argue, in contrast, that only the noisy details of the situation can define a problem. To "define" a problem is to interact with the material world according to the conventions of a particular discourse community; these conventions are the only source for categories of similar problems, operational definitions, and alternative solutions, and a conclusion can only be evaluated as "well supported" in terms of a particular community's standards.

I certainly do not mean to suggest that students should not be encouraged to look at reality when they compose — far from it, since I have emphasized the function of writing in doing (intellectual) work in the world. But I do mean to point out that we cannot look at reality in an unfiltered way — "reality" only makes sense when organized by the interpretive conventions of a discourse community. Students often complain that they have nothing to say, whereas "real-world" writers almost never do, precisely because real-world writers are writing for discouse communities in which they know their work can matter, whereas students can see little purpose for their own attempts ("essais") other than to get a grade. For example, Erwin Steinberg has suggested that the superior organization of an electrical engineer's report, as compared to a freshman composition, stems from the engineer's superior knowledge of and experience in a field; what looks like a cognitive difference turns out to have a large social component (see "A Garden of Opportunities and a Thicket of Dangers," *Cognitive Processes*, pp. 163-165). Hence, although Steinberg is sympathetic to the project of finding writing models and heuristics, he cautions, "We must always be careful not to think in terms of a single model, because if we do we'll find one and force everyone to use it — the way English teachers used to require students to make formal outlines before they wrote" (p. 163).

The cognitive psychology approach cuts off writing-as-problem-solving from the context of a discourse community precisely because *one* model is sought (Steinberg's caveat notwithstanding). Discourse communities are tied to historical and cultural circumstances, and hence can only be seen as unenlightening instances of the general theory the cognitive approach seeks: the one model is the universal one. All of the theoretical essays in *Cognitive Processes in Writing* seek to find this model. Carl Bereiter offers an account of the stages of development in children's writing processes. Like the Flower-Hayes model, his is recursive — that is, he suggests that children's development includes a certain set of stages but that the order of these stages can be changed. There is, however, a "preferred or 'natural' order of writing development," an order in which the constraints on composing imposed by the necessity of putting thoughts into words are gradually reduced by being "automatized." Bereiter suggests that this order should be adopted in the schools (see "Development in Writing," p. 89).

Collins and Gentner seek to go even further in schematizing their theory as a rule-governed model because they hope to end with a program enabling a computer to compose (see "A Framework for a Cognitive Theory of Writing," pp. 51-52). This would permit the creation of "Writing Land," where computers would guide students through the patterns of the writing process and enhance the students' cognitive activities (see "Framework," pp. 67-70). Computer-assisted composition will help students reduce the constraints imposed by the struggle to put thoughts into words by separating "idea production" and "text production" ("Framework," p. 53). Once the ideas are under control, "the next stage is to impose text structure on the ideas" ("Framework," p. 59).

During text production, Collins and Gentner confidently state, the writer can call on "structural devices, stylistic devices, and content devices" — the term "devices" suggesting rule-governed mechanisms. Yet "unfortunately for the writer, there is no one-to-one correspondence between means and end here" — in other words, no consistency in situation that would permit reliance on rule-governed mechanisms ("Framework," p. 60). Collins and Gentner's analysis frequently bumps up

against language's opacity, the contribution to thinking of densely situation-bound meanings embodied in habits of language-using. Because they cannot account for this situational aspect of writing, Collins and Gentner can only define "good writing" as writing that conforms to a set of rules set by some authority (see "Framework," pp. 52-53). This approach leaves them no way to justify the authority's decisions as other than arbitrary, and hence their "rules" turn out to be situation-bound: "Delete extraneous material," "Shorten long paragraphs," and so on ("Framework," p. 65). Such advice is unhelpful to students without other knowledge that enables them to identify the extraneous and over-lengthy, as I noted earlier in my discussion of revising rules.

The fundamental problem with this approach is that it assumes that the rules we can formulate to describe behavior are the same rules that produce the behavior. As attempts to program language-using computers have shown, such structures reveal their lack of explanatory power when applied to an actual situation in which discourse conventions come into play. Programming a computer to use language comes up against a problem of infinite regress of context — or, how do we tell the computer how to tell what's important when things are important only in terms of purposive activity? How can we define, for example, what is "extraneous material," when the quality of being extraneous resides not in the material itself but in its relation to discourse? Or, to use a simpler example, how can we tell the computer when a paragraph is too long except by specifying a range of lines that constitute acceptable lengths? Is there any form of discourse in which 20-line paragraphs are acceptable and 21-line paragraphs are not? As the competence/performance debate in linguistics has suggested, it may be that we cannot have a completely descriptive theory of behavior in widely varying specific situations — that is, we cannot formulate universal rules for context-bound activities. If language-using isn't rule-governed in this sense, however, it still may be regular — that is, we may be able to group situations as likely to share a number of language-using features. But to do this is to describe the conventions of discourse communities.[26]

As I have been arguing, then, both the inner-directed and the outer-directed theoretical schools will have to contribute to a synthesis capable of providing a comprehensive new agenda for composition studies. My critique of Flower and Hayes's work is intended to contribute to such a synthesis, not to delegitimate what they are doing. I do want to raise a serious question, however, about another feature of the inner-directed school, a feature that works against fruitful discussion and synthesis: the quest for certainty. In seeking one universal model of the composing process, inner-directed theorists seek a new set of principles for our discipline that will raise their arguments, as one has put it, "above mere ideology" (Hirsch, p. 4). They seek a kind of certainty they believe is accessible only to science, and their talk of paradigm-shifting invokes Kuhn to announce that our discipline will soon have a scientific basis.[27]

This kind of certainty is presumably analogous to the commonplace elevation of fact over opinion, since it is supposed to end all debate. The inner-directed school therefore has redefined composition research to mean a search for the facts in the real world that prove a theory beyond debate. The Flower-Hayes model claims much prestige from being derived from such supposedly unimpeachable evidence. But its reliance on empirical evidence can be questioned on several grounds. For one thing, protocol analysis is a controversial method even within cognitive psychology because it tends to affect what is being observed (see Gould's remarks, *Cognitive Processes*, p. 125). Flower and Hayes's work is particularly vulnerable because most of their adult subjects have been English teachers who are familiar with the specialized vocabulary of the theory of Flower and Hayes have used to analyze the protocols. Under any circumstances, protocol analysis can lead to "self-fulfilling" prophecy because its assumption that the subject's words mirror her thinking allows the researcher to claim that certain thought processes have occured if certain words appear in the protocol. Self-fulfilling prophecy is even more likely when test subjects share expert knowledge of these words with the researchers.

The larger point to be made here, however, is that no scientific research, no matter how rigorously it is conducted, possesses the kind of authoritative certainty inner-directed theorists are seeking.[28] It is always desirable, of course, to know more about composing, but it is also necessary to treat this know-

ledge as provisional, the way scientists treat their findings, if inquiry is not to end. We may wonder, then, why inner-directed theorists are so ready to invest their results with final authority and rush to pedagogical applications. I think it is that certainty appeals to composition specialists these days for various reasons. For one, until recently composition studies was a low-status enclave it was hard to escape; a powerful theory would help us retaliate against the literary critics who dominate English studies. Moreover, such a theory might help us survive what appears to be the long slide of all humanistic disciplines into a low-status enclave. A scientific-sounding theory promises an "accountability" hedge against hard times.

The strongest appeal of certainty, however, is its offer of a solution to our new students' problems that will enable us to undertake their socialization into the academic discourse community without having to consider the ethical and political dimensions of this act. We are reluctant to take up ethical and political questions about what we do because writing teachers have been under a terrific strain. Pressured with increasing asperity by our colleges to prepare students for their other courses, we have also felt anxious in the classroom both when our teaching worked — because we sensed that we were wiping out the students' own culture — and when it didn't — because we were cheating them of a chance to better their situations. Inner-directed pedagogy meets teachers' emotional needs because it can be defended on grounds that are likely to satisfy complaining faculty and administrators, and because its claim to a basis in universals assures us that when we inculcate it, we aren't touching the students' own culture but merely giving them a way arund it and up the ladder of success. The corollary is that students for whom the pedagogy doesn't work need no longer be seen as victims of our incompetence but simply as innately inferior.

Invocation of certainty, then, performs the rhetorical function of invocation of the Deity. It guarantees the transcendent authority of values for which we do not need to argue but which we can now apply with the confidence of a "good cause." I would argue, however, that we must understand such a move as the assigning of superhuman authority to a human construction. All knowledge, that is, is of human origin, even scientific

knowledge. Indeed, modern philosophy has centered around a critique of scientific knowledge precisely because such knowledge is most likely now to be treated as certain. As Richard Rorty has recently shown, the history of Western philosophy since the Renaissance can be seen as a series of unsuccessful attempts to fight off the admission that such claims for certainty are no longer tenable.²⁹ There is no way out of confrontation, except among fellow believers, with the necessity of arguing for one's ethical choices.

This confrontation is especially necessary in a pluralistic society such as the United States, in which a heterogeneous school population ensures that pedagogical choices will affect students unequally. Under such circumstances, as Rorty cautions, claims to certainty often express simply a desire for agreement which masks the question of whose interests are being served (see Rorty, p. 335). Teachers' individual ethical choices add up to political consequences, responsibility for which we cannot avoid. We are better off, then, with a disciplinary theory that encourages examination of consequences. For example, inner-directed research might come up with an heuristic that is useful in Basic Writing classes. But if we use it there, we should not imagine that the heuristic allows us to forget who the students are in Basic Writing classes, where they come from, what their prospects are — in short, why these particular students are having educational difficulties.

Ultimately, I am calling for the inspection of what some curriculum theorists have called the "hidden curriculum": the project of initiating students into a particular world view that gives rise to the daily classroom tasks without being consciously examined by teacher or students.³⁰ If we call what we are teaching "universal" structures or processes, we bury the hidden curriculum even deeper by claiming that our choice of material owes nothing to historical circumstances. To do this is to deny the school's function as an agent of cultural hegemony, or the selective valuation and transmission of world views. The result for students who don't share the school's preferred world views is either failure or deracination. I think we must acknowledge cultural differences in the classroom, even though this means increasing our emotional strain as members of one group trying to mediate contacts among various others.

The kind of pedagogy that would foster responsible inspection of the politically loaded hidden curriculum in composition class is discourse analysis. The exercise of cultural hegemony can be seen as the treatment of one community's discourse conventions as if they simply mirrored reality. To point out that discourse conventions exist would be to politicize the classroom — or rather, to make everyone aware that it is already politicized. World views would become more clearly a matter of conscious commitment, instead of unconscious conformity, if the ways in which they are constituted in discourse communities were analyzed.

This is not to say that we can make the school an ideologically neutral place. The whole force of my argument is that there is no way to *escape* all discourse communities, stand outside them and pronounce judgment. Furthermore, I assent to most of the conventions of the academic discourse community and believe that students from other communities can benefit from learning about them, and learning them. But perhaps we can break up the failure/deracination dilemma for students from communities at a distance from academe. Through discourse analysis we might offer them an understanding of their school difficulties as the problems of a traveler to an unfamiliar country — yet a country in which it is possible to learn the language and the manners and even "go native" while still remembering the land from which one has come.

In his discussion of literary criticism and interpretive communities, Stanley Fish has offered us one set of suggestions for how such ethically and politically conscious education might proceed. Richard Rorty offers another in his vision of philosophy becoming not the arbiter of disciplines but the mediator among them. This "edifying" philosophy will have as its task making us realize that agreement that looks like certainty can occur only "because when a practice has continued long enough the conventions which make it possible — and which permit a consensus on how to divide it into parts — are relatively easy to isolate" (p. 321). Rorty's is not a positivist notion of arbitrary conventions; he sees conventions as the product of communities, situation-bound but also subject to change. Rorty generalizes Kuhn's notions of "normal" and "revolutionary" science to argue that the edifying philosopher's task is to keep reminding us that "normal" discourse is evidently clear and

above debate only because we agree about its conventions. Education must begin with normal discourse but should not be limited to it, with its unhelpful distinction between facts and values (see p. 363). For the goal of discovering Truth, Rorty substitutes the goal of continuing conversation, but this will not be a dangerously relativistic goal because always conditioned by and having to answer to an historical framework. Rorty's philosophical community thus resembles Fish's interpretive community.

Finally, then, we should see our answers to the question of what we need to know about writing in the light of a new humanistic synthesis. Philosophy has moved to the position that discourse communities are all we have to rely upon in our quest for certainty. Literary criticism is analyzing how discourse communities function as historically situated interpretive communities. Composition studies should focus upon practice within interpretive communities — exactly how conventions work in the world and how they are transmitted. If the work of these disciplines continues to converge, a new synthesis will emerge that revivifies rhetoric as the central discipline of human intellectual endeavor. In view of such a synthesis, the project to make composition studies merely scientific looks obsolete.

I hope that this rhetorical synthesis, because it turns our attention to questions of value and persuasion, will also reawaken us to the collective nature of the whole educational endeavor. There should be no disgrace in discovering that one's work and the understanding that guides it cannot be achieved autonomously. Then the main casualty of our theoretical debate can be the debilitating individualism that adds so much to classroom strain. In other words, let us emphasize not only discourse but also community. I do not mean that we should seek to eliminate the conflicts that arise from our coming from different historical and cultural situations. We should recognize that being so situated is the most important thing we have in common."

Notes

¹The attitude I'm describing here has been called current-traditionalism, and it still dominates textbooks in the field; see Donald C. Stewart, "Composition Textbooks and the Assault on Tradition," *College Composition and Communication*, 29 (May 1978), pp. 171-76.

²I am taking this sense of "isomorphic" from Frank D'Angelo, *A Conceptual Theory of Rhetoric* (Cambridge, Mass.: Winthrop, 1975), pp. 16, 26-36.

³I have in mind here the justification for teaching Standard English advanced in E.D. Hirsch, Jr., *The Philosophy of Composition* (Chicago: Univ. of Chicago Press, 1977).

⁴For example, Richard Young has recently characterized his parti-cle-wave-field heuristic as based on "universal invariants that underlie all human experience as characteristic of rationality itself"; in "Arts, Crafts, Gifts, and Knacks: Some Disharmonies in the New Rhetoric," *Visible Language*, 14, no. 4 (1980), 347.

⁵For an overview of research on sentence-combining and the arguments for teaching it, see Frank O'Hare, *Sentence Combining: Improving Student Writing without Formal Grammar Instruction* (Urbana, Illinois: NCTE, 1973).

⁶A new textbook that operates from these principles of audience analysis (and other inner-directed pedagogy) is Janice M. Lauer, Gene Montague, Andrea Lunsford, and Janet Emig, *Four Worlds of Writing* (New York: Harper and Row, 1981).

⁷Typically, a discourse community prefers one form of the native tongue, which may be characterized simply by level of formality and specialized vocabulary, or which may be a dialect, or a fully constituted language (in the native tongue's family) with its own grammar rules. The outer-directed theorists thus emphasize "parole" over "langue," to use de Saussure's terms, "performance" over "competence," to use Chomsky's terms. For a good account of such language differences in an American setting, see William Labov, *The Study of Nonstandard English* (1969; revised and enlarged; Urbana, Illinois: NCTE, 1975).

⁸See, for example, M.A.K. Halliday, "Language as Social Semiotic," *Language as Social Semiotic* (Baltimore: University Park Press, 1978), pp. 108-26.

⁹This attitude has been called the Sapir-Whorf hypothesis, because arguments are advanced for it by linguists Edward Sapir and his pupil,

Benjamin Lee Whorf; for a good summary and critique of the Sapir-Whorf hypothesis, see Adam Schaff, *Language and Cognition* (1964; trans. Olgierd Wojtasiewicz, ed. Robert S. Cohen; New York: McGraw-Hill, 1973).

¹⁰This, I think, is the gist of the analysis offered by Mina Shaughnes-sy, "Beyond the Sentence," *Errors and Expectations* (New York: Oxford Univ. Press, 1977), pp. 226-72.

¹¹A new textbook that operates from some principles of outer-directed pedagogy is Elaine Maimon, Gerald L. Belcher, Gail W. Hearn, Barbara F. Nodine, and Finbarr W. O'Connor, *Writing in the Arts and Sciences* (Cambridge, Massachusetts: Winthrop, 1981).

¹²For an exemplary analysis of academic discourse conventions and how they lead to the accomplishment of the community's work, see Charles Bazerman, "What Written Knowledge Does: Three Examples of Academic Discourse," *Philosphy of the Social Sciences*, 11 (September 1981), pp. 361-87; further references in text.

¹³Linda Flower and John R. Hayes, "A Cognitive Process Theory of Writing," *College Composition and Communication*, 32 (December 1981), pp. 365-87; further references in text.

¹⁴Lee W. Gregg and Erwin R. Steinberg, editors, *Cognitive Processes in Writing* (Hillsdale, New Jersey: Lawrence Erlbaum, 1980); further references in text.

¹⁵Lev Vygotsky, *Thought and Language* (1934; rpt. ed. & trans. Eugenia Hanfmann and Gertrude Vakar; Cambridge, Mass.: MIT Press, 1962), p. 51, author's emphasis; further references in text. Vygotsky's pupil A.R. Luria did research among Uzbek peasants which suggests that thought and language interpenetrate to such a degree that perception of optical illusions, for example, changes with cultural experience and level of education; see A.R. Luria, *Cognitive Development* (1974; rpt. trans. Martin Lopez-Morillas and Lynn Solotaroff, ed. Michael Cole; Cambridge, Mass.: Harvard Univ. Press, 1976).

¹⁶See M.A.K. Halliday and Ruqaiya Hasan, *Cohesion in English* (London: Longman, 1976), pp. 19-26.

¹⁷My line of argument here is based on Dell Hymes, "Bilingual Education: Linguistic vs. Sociolinguistic Bases," *Foundations in Sociolinguistics* (Philadelphia: Univ. of Pennsylvania Press, 1974), pp. 119-24; in the same volume, Hymes argues that to uncover the extra-linguistic attitudes lending significance to language use, linguists need more contributions from folklorists.

¹⁸George L. Dillon, *Constructing Texts* (Bloomington, Indiana: Indiana Univ. Press, 1981), pp. 1-20; further references in text.

¹⁹A critique of the notion of simplicity-as-clarity has been offered by Richard Lanham, *Style: An Anti-Textbook* (New Haven, Conn.: Yale Univ. Press, 1974). Lanham's later work in composition pedagogy suggests, however, that he is cynical about the position taken in *Style* and not really ready to defend "ornate" language choices outside of special

literary circumstances; see Richard Lanham, *Revising Prose* (New York: Scribner, 1979). Dillon, pp. 21-49, is more helpful on understanding the problems with revising rules.

[20]Halliday, "Language in Urban Society," p. 163; Halliday suggests that our current difficulties in the composition class may be at least in part a function of the increasing number of students who come from urban areas.

[21]See Stanley Fish, *Is There a Text in this Class?* (Cambridge, Mass.: Harvard Univ. Press, 1980), further references in text; the following argument is heavily indebted to Fish's work.

[22]Mina Shaughnessy, "Some Needed Research on Writing," *College Composition and Communication*, 27 (December 1977), p. 319.

[23]See Basil Bernstein, *Class, Codes and Control* (1971; rpt. New York: Schocken, 1975); and to correct the vulgar error that Bernstein is diagnosing a cognitive deficiency in working-class language, see "The Significance of Bernstein's Work for Sociolinguistic Theory" in Halliday, pp. 101-107. Many dangerous misinterpretations of Bernstein could perhaps have been avoided if he had not chosen to call working-class language-using habits a "restricted code" and middle-class (school-oriented) habits an "elaborated code."

[24]The seminal text here is Thomas Kuhn, *The Structure of Scientific Revolutions*, 2d. edition, enlarged (Chicago: Univ. of Chicago Press, 1970). Kuhn is now going so far as to say that "proponents of different theories (or different paradigms, in the broader sense of the term) speak different languages — languages expressing different cognitive commitments, suitable for different worlds"; he announces the study of language's function in theory-making as his current project. See Thomas Kuhn, *The Essential Tension* (Chicago: Univ. of Chicago Press, 1977), pp. 22-23.

[25]Linda Flower, *Problem-Solving Strategies for Writing* (New York: Harcourt Brace Jovanovich, 1981); further references in text.

[26]In my discussion of Collins and Gentner, I am following the line of argument offered by Hubert L. Dreyfus, *What Computers Can't Do* (New York: Harper and Row, 1972); rpt. 2d. edition, San Francisco: Freeman, 1979). Flower and Hayes's sympathy with the Collins-Gentner approach is suggested not only by the large amount of agreement between the two accounts of composing, but also by the numerous borrowings in the Flower-Hayes model from computer terminology and by Flower and Hayes's suggestion that their model will contribute toward "building a Writer" ("Process Theory," p. 368).

[27]For an example of this use of Kuhn, see Maxine Hairston, "The Winds of Change: Thomas Kuhn and the Revolution in the Teaching of Writing," *College Composition and Communication*, 33 (February 1982), pp. 76-88.

[28]This argument follows the account of rhetoric's function in the scientific discourse community given by Kuhn in *Structure* and (in a

more radical version) by Paul Feyerabend, *Against Method* (1975; rpt. London: Verso, 1978).

[29]Richard Rorty, *Philosophy and the Mirror of Nature* (Princeton, NJ: Princeton Univ. Press, 1979); further references in text.

[30]On the hidden curriculum and its reproduction of oppressive social power relations, see Michael Apple, *Ideology and Curriculum* (London: Routledge and Kegan Paul, 1979).

[31]I would like to thank Bruce Herzberg for the many ideas and the editorial guidance that he has, as usual, contributed to my work.