THINKING AND WRITING: A SEQUENTIAL CURRICULUM FOR COMPOSITION

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In spite of such important essays as Janet Emig's "Writing as a Mode of Learning" and William Irmscher's "Writing as a Way of Learning and Developing," composition instruction has been relatively immune to systematic efforts to improve students' thinking. Although James Moffett and a few others have developed cognitively sequenced curricula for elementary and secondary writing, college composition, when it is sequenced at all, tends to rely on structural or rhetorical arrangements which are neither sequential nor cumulative. Progressions from word to sentence to paragraph to theme confuse quantitative with qualitative growth, while rhetorical sequences confront students with cognitive problems of different but equal complexity. In short, from a cognitive perspective, most writing instruction in higher education is consistent with that in secondary education: what Stephen Judy described as "Advanced Hodgepodge" in high school gives way to "Arrogant Hodgepodge" in college.3

A large and growing body of research, however, shows that cognitive development follows a hierarchical sequence of stages and suggests that a curriculum can be sequentially organized to promote cognitive development. Beginning with Piaget's theory of cognitive development, researchers from William Perry to Lawrence Kohlberg, James Moffett to James Britton have essentially agreed that intellectual growth in general, and the development of writing abilities in particular, follows an identifiable, predictable series of stages.4 Though each theorist agrees that the exact features of his sequence vary considerably from person to person, largely as a result of individual, environmental, and experiential differences, the consistency of the hierarchical stage model from theorist to theorist reinforces the reliability of the overall concept. Despite differences in detail, all these thinkers concur that as thinking matures it becomes increasingly integrative, classificatory, and discriminat-
ing; progressively more independent of concrete referents; more abstract, hypothetical, and relativistic; and less egocentric and decreasingly subject to peer or authority pressure.

All these theories, too, are explicitly tied to education and its potential for moving the student toward realizing full cognitive and ethical development, whether we call it formal operations after Piaget, commitment in relativism after Perry, postconventional moral reasoning after Kohlberg, theorizing after Moffett, or tautological thinking after Britton. These models have helped educators describe the general goals of the curriculum and interpret students' cognitive behavior and its shortcomings. Yet, with the exception perhaps of Moffett's model, delineated in Active Voice and A Student Centered Language Arts Curriculum, the stage theories have not translated easily into specific structures in curriculum design. As a result, educators have a clear sense of where they need to go, but lack a map of how to get there.

The absence of such a design in college writing instruction is particularly unfortunate when we take seriously the idea that is the mainstay of the writing-across-the-curriculum movement: writing, as Toby Fulwiler described it, is an "act of cognition," an essential activity for objectifying and preserving thought, for forming relations and manipulating ideas as one makes academic experiences personally and intellectually meaningful. Finding a reliable model on which to build a writing curriculum, whether in a composition class or in writing-intensive classes in the disciplines, can help us realize the potential of writing in promoting cognitive development.

Bloom's Taxonomy of Educational Objectives provides some essential connections between the cognitive abilities we expect of college students and a curriculum that can stimulate those abilities. Unlike the Piaget/Perry/Kohlberg models, which span long periods of childhood, adolescent, and early adult development, Bloom's Taxonomy represents a cognitive hierarchy that is largely a-chronological, a task- or field-specific hierarchy of thinking modes that is reducible to a unit or expandable in upwardly spiral progressions to a semester and beyond. Since its origin in 1948 as an effort to clarify and organize educational goals, the taxonomy has been the subject of continuous research that has, as much as is possible with abstractions of this nature, repeatedly confirmed its validity, accuracy, and comprehensiveness, particularly with regard to the cumulative and hierarchical nature of cognitive processes.
as research accumulates on the cognitive shortcomings of today's college students, Bloom's Taxonomy is one solution to the cognitive hodgepodge of the writing curriculum. It allows us to sequence instruction and assignments in ways that speak directly to students' developmental needs.

More students than those designated "remedial" are thinking in the cognitive style that Piaget labeled "concrete operations" and William Perry described as "dualistic." For instance, Randall Freisinger marshalled impressive evidence to show that across the curriculum, many college students have not reached formal operations—the highest level of cognitive development in which thought is characterized by abstract, decentered thinking and an increased reliance on language as the intermediary between self and environment.8 Another vein of research, coming from over a decade of inquiry into the development of historical thinking, suggests that in language-oriented areas, formal operational thinking does not naturally begin until ages 16-18, four to six years later than formal operations in quantitative areas.9 Many college students, then, are just beginning to command the complexities of formal operational thought; they are neither sophisticated nor experienced in the detached, logical, hypothetical nature of thinking at this level. Based on this evidence, one researcher in history education argues that "a sequence of stages in historical thinking must be delineated and connected to the broader stages of cognitive and psychological development. The ultimate aim of teaching history should be to stimulate that development."10 Much the same case is to be made for instruction in writing.

For instance, these findings add to what we already know about students' writing in the face of "cognitive overload." In their study of intellectual and rhetorical growth, Freedman and Pringle contend that "it is quite simply more difficult to write when the task is more intellectually taxing."11 As a result, mastery of syntax, grammar, and rhetoric demonstrated in simpler assignments breaks down in response to more complex tasks—posing an enormous pedagogical dilemma for the teacher, who must often choose between bland but correct essays and flawed but ambitious ones in making evaluations. When teachers reward rhetorical competence without regard to intellectual achievement, Freedman and Pringle conclude that they "may actually impede cognitive growth."12

Bloom's Taxonomy provides a sequence of cognitive modes that allows a structuring of assignments' intellectual de-
mands. Originally intended and still used primarily as a tool for improving testing, the complete taxonomy remains an extensive catalog of what people do when they think. In addition to its impact on regulating and standardizing testing, the taxonomy can be used more broadly, as Bloom had hoped: to "stimulate thought about educational problems" and to "aid [researchers] in formulating hypotheses about the learning process and changes in students" (p. 21). It is in this broad sense of exploring the learning process, rather than the narrower sense often associated with Bloom's work, of defining explicit, often restrictive teaching and testing objectives, that I am using his taxonomy. In this broad sense, the taxonomy has also served to sequence and structure entire curricula ranging from elementary education to graduate school and subject areas as diverse as mathematics, medicine, and social studies; as well as to assess a teacher's personal effectiveness in promoting cognitive growth through verbal interaction in the classroom.13

For writing instruction the taxonomy provides a flexible model of what happens cognitively in the learning process. From least to most complex, Bloom described a six stage sequence: Knowledge, Comprehension, Application, Analysis, Synthesis, and Evaluation. (See Figure 1).

![Bloom's Taxonomy of Cognitive Skills](image-url)
At each new level, thought processes build on and encompass previous levels. Implicit in this structure is the assumption of an ascending scale of difficulty and comprehensiveness. Thinking at the comprehension level is more demanding than at the knowledge level; cognitive problems requiring synthesis or evaluation encompass all the preceding levels.

This model reiterates the familiar theme that cognitive development is a process of formulating increasingly comprehensive abstractions; the learner moves progressively away from immediate experience, transforming that experience into symbolic representations which, combined with other symbolized material, eventually become the primary stuff of thinking. Unlike other models, Bloom’s taxonomy identifies specific cognitive operations that are otherwise too broadly labeled to generate specific tasks and pedagogical goals. By sequencing writing assignments according to the taxonomy, teachers increase the likelihood of incrementally developing students’ thinking processes. With cognitive demands controlled, diction, sentence construction, selection of details, organization, and so on are more manageable.

Most important, in contrast to the chronological limitations implied in other stage theories of cognitive development, Bloom’s taxonomy is really spiral, not linear, and task-specific, not age-specific. The implication is that regardless of their abilities, writers all begin at the bottom of the hierarchy and work their way up each time they confront a new writing problem, whether the problem is finally one of analysis, synthesis, or evaluation. In turn, a person who attains insight through analytic or synthetic processes makes that insight part of her general repertoire of knowledge. With that new knowledge base, the person proceeds upward through the taxonomy again to master new concepts which eventually become part of the ever enlarging knowledge pool. Thus, within each taxonomic level cognitive problems vary greatly in their complexity and comprehensiveness, making the hierarchy applicable across ability levels, ages, subject areas, and contexts. In this respect it provides a way to understand not what people know, but how they know it, a sequential epistemology in which mastery of the individual stages is equally as important as attaining the final stage.

Looked at another way, the taxonomy clarifies the cognitive operations of the composing process. Since assignments in most writing classes are usually not related to a specific subject
area, writers are always beginning at the knowledge level and must work their way up to the cognitive level appropriate to the topic. Although in one respect this is saying nothing more than the age-old advice to gather information and organize it, the taxonomy shows the layers of thinking that intervene before a writer can translate information into a question or thesis statement even of the least ambitious kind. Without adequate attention to the problems of collecting material, understanding it, and using it outside its immediate context, many students seem unable to perform higher level operations in analysis and synthesis, which are routinely expected in college writing. If writing classes are to be truly developmental, students need help in externalizing the full range of these cognitive stages so they can understand more fully their own discovery and composing process, as well as the demands of individual topics.

Moreover, the taxonomy can help us realize more fully the implications of understanding writing as a process. An alternative to the large-scale, one-shot projects serving as capstones to many courses is to devise a sequence of shorter assignments that moves students through the stages to achieve proficiency in a mode of thinking especially relevant to that discipline or course. For the natural and social sciences, this may mean considerable work at the knowledge and comprehension levels with students practicing observation and description. For a course in practical criticism in literature or the arts, such a sequence would involve a progression culminating in evaluation and emphasizing the synthetic thought necessary to formulate principles and criteria. We know too little as yet about the modes of discourse (and hence modes of thinking) characteristic of each discipline; however as we move toward that understanding, the taxonomy seems to help teachers and students become more aware of the cognitive ends toward which they are working. In other words, such sequences satisfy the need for closure on individual assignments but create a larger context that treats writing as the developmental process through which one arrives at the epistemological goals of a course or discipline.14

A review of Bloom’s definitions for each taxonomic level suggests what such a cognitively-based writing course might entail. Although the focus of each level is cognitive, rhetorical issues of audience and purpose are equally appropriate and can be specified for any assignment.
Level I. Knowledge, Getting It Right with the Self

Knowledge, the foundation of thinking, is the accumulation of pieces of information. As Bloom points out, "the knowledge category differs from the others in that remembering is the major psychological process involved here, while in the other categories the remembering is only one part of a much more complex process of relating, judging, and reorganizing" (p. 62). At this level the student is in a relatively passive role, simply remembering material as it has been given. Bloom lists at some length the various forms of remembered knowledge, establishing an internal hierarchy that ranges from recall of specific facts and terminology to recall of universals and abstractions in a field. However, more important than the knowledge categories themselves is the suggestion that no matter how sophisticated information may appear, the distinguishing cognitive feature is that it is simply remembered, or in Moffett's terminology, "recorded." Here the elasticity of the taxonomy, as a model suited to varying abilities and topics, becomes clear. For example, a person who remembers how a black hole is formed in outer space is functioning at the same cognitive level as someone who simply recalls the order of planets in our solar system. Their thinking is relative to the different tasks, but in both cases the cognitive operation of remembering, despite its variation in content, serves as the base for subsequent, more complex operations.

Research on testing practices in high schools shows why writing assignments at the knowledge level are especially appropriate to college composition. In one study, investigators found that of 60,000 study and test questions in high school history books and teacher's manuals, less than 10 percent were given at levels beyond knowledge and comprehension. Further, if writing assignments of a paragraph or longer at the secondary level are as infrequent as Applebee's study revealed (3 percent of the time in classroom observation), then it is reasonable to conclude that entering college students have had limited experience doing the independent, self-initiated thinking required to write well, and that most of their thinking has been directed toward the lowest levels of recollection. Researchers in the most recent study of Bloom's taxonomy warn teachers that not only is the concentration of academic work at the lower levels of the taxonomy related to lower achievement but, more important, such concentration probably hinders higher-level thinking.
For college level writing instruction the implication is clear: many, if not most incoming college students have primarily engaged in relatively low-level thinking activities, including their limited writing exercises. Their writing, as Applebee reports, has "focused on information presented in lessons or textbooks; it was essentially a test of what the student had learned." Students whose writing is essentially a catalog of undigested information provide abundant evidence that lower-order thinking is a widespread cognitive style. Thus, although students may have learned the appropriate terminology, such as "thesis" and "topic sentence," they probably have never really learned to use these concepts, since using them involves activities that occur much higher in the taxonomy.

This being the case, writing assignments need to start where the students are—with the direct embodiment of remembered material into written language. Short pieces might involve the simple recording of facts such as the plot of a film or story and move on to longer written reports of more complex arrangements of information such as the main points of a lecture, a research study in a psychology class, or a biological process like the Kreb's cycle. The audience is primarily the self; the purpose self-expressive. By writing down what they already know well, writers translate ideas from mind to paper without the added burden of needing to prove or defend the subject's rightness or validity. At this stage, too, writers begin to develop the objectivity needed at all cognitive levels to produce writing that expresses their intentions.

Level II. Comprehension, Moving From Self to Others

At the comprehension level, students begin to internalize information by weaving together once discrete facts and ideas. Significantly, Bloom finds that all the activities demonstrating comprehension involve explaining something to someone else. The beginnings of learning, then, are linked with the rhetorical dimensions of audience. Thinking is still closely bound to the source, but the student steps beyond rote memorization to put concepts into familiar terms, to begin perceiving hierarchical distinctions between generalizations and specifics, and to be able to fill in gaps in the material, much as readers do in Cloze tests.

Most essay test questions rely on comprehension, but in the writing class other variations are possible. Paraphrasing, es-
especially of unfamiliar or argumentative sources, helps students to overcome egocentrism and see the source as it is, not as they wish or believe it to be. Similarly, letters help to build comprehension skills because of the awareness of a specific reader. Problem solving exercises in which the data is given (especially statistical data that must be translated into words), process explanations, explications of readings and simple summaries explained to someone else—all these are writing activities that develop comprehension skills. At the most sophisticated point of the comprehension hierarchy, classification of elements of a given system is involved as a way to interpret material. This activity helps to initiate later developments in the disciplined use of coordination and subordination, not just as syntactic patterns, but as thinking abilities. In all these exercises, writers show comprehension by going beyond egocentric needs to render material in a suitable form for a reader. Significantly, as Bloom discovered while he was preparing the taxonomy, "in the cognitive domain especially, it appears that as the behaviors become more complex, the individual is more aware of their existence" (p. 19), and "students are able to give more complete reports of their attack on a problem" (p. 20).19

In other words, one result of putting a cognitive hierarchy into a pedagogical framework is that students are helped to gain awareness of both self and other and to reflect self-consciously on the processes they are engaged in to understand themselves and communicate with others. This is to reiterate what James Moffett concludes in his discussion of cognitive development: we engage in the whole spectrum of cognition at all ages yet often remain unaware, thus not fully in control of, our thought processes. What is important, says Moffett, is that "increased consciousness of abstracting [e.g., cognitive level] has as much to do with developmental growth as has progression up the abstraction ladder."20

Level III. Application, Transcending the Familiar

Comprehension involves thinking that derives from a given context. At the next level, application, students put knowledge to work in new situations, using what Bloom calls "transfer learning." What happens here is a conscious sorting-through of what the individual knows in order to apply it to an unfamiliar problem. Students become increasingly aware of
what they know and how they are using it in a new context.

In view of studies of the high school curriculum, the step from comprehension to application may not be as automatic as it seems. The cognitive ability to formulate a thesis, understood as a generalization one infers about a topic, probably does not emerge until this stage in the hierarchy, and even at this level thesis statements are restricted to relatively obvious inferences. Similarly, the ability to hypothesize and ask speculative questions is unlikely until this stage. What we know of the high school curriculum suggests that these activities are relatively foreign, yet we regularly expect entering college students to perform with comfortable familiarity at this level. I suspect that our disappointment over the quality of students' propositions and their lack of ability to develop them stems from this gap between students' experience and our expectations. Asked to frame and develop a thesis, students fall back on what they know well—basic information and personal opinion about it.

To bridge this gap, systematic work with application assignments is essential. The general form of such assignments is, "Given this, what would happen if . . ." with topic content ranging from the application of laws to cases (legal, psychological or otherwise), sociological, economic, or political principles to current events, laws of geometry to carpentry or trigonometry to pool. For example, given a writing course focused around the topic of language awareness, students might be asked to speculate on future meanings of current slang words based on principles of language change; or to examine marketing trends for specific products and devise an advertising campaign for a new product. In each instance, students move from the here-and-now of the rule or principle to making predictions, asking questions, or proposing conclusions about possible outcomes.

Level IV. Analysis, Discovering Internal Structure

Analysis succeeds application in the cognitive hierarchy. At this level, issues in logic, organization, and coherence become central as writers devote their attention to the internal structure of material—its elements, their relationships, and the principles governing their order. At the knowledge and comprehension levels, organizational principles are apparent from the material, usually chronological or spatial. In analysis, meaning, structure, and logic must be inferred from the internal structure
of the material or conferred according to the writer's purpose or audience. The predominant cognitive concern is the question of meaning as it derives from deep structures. Distinctions between fact and assumption, conclusions and support, relevant and irrelevant detail, assertion and implication, whole and part are all concerned with this issue.

The possibilities for analytic writing activities are already familiar: anthologies provide model for literary or rhetorical analysis and imitation. Other rhetorical structures such as television and print advertisements, books and films can be analyzed to solve specific problems or answer specific questions. Explanations of political, natural, historical, or interpersonal situations, or of causes or effects also involve analytic processes, as do the varieties of textual analyses common among all disciplines. In short, most essay assignments traditionally included in an introductory expository writing course and continued throughout the college years are essentially analytical.

Level V. Synthesis, Achieving Integration

The fact that expository writing classes frequently build toward the research paper suggests that implicitly our instructional models have been relying upon the upper reaches of Bloom's taxonomy—synthesis and evaluation. Yet the fact that the research paper assignment often fails (transformed as it is into some version of the encyclopedia report) indicates the cognitive maturity necessary to produce such a paper. Such an assignment asks students to perform at a cognitive level for which they are often insufficiently prepared. Although there are probably many reasons for the failure of this assignment, the taxonomy provokes the observation that students generally work from an inadequate base in knowledge and comprehension which, like the proverbial sand foundation, finally gives way under too much pressure. Students' inability to develop and sustain an argument may be less a result of ignorance about the nature and structure of argumentation than it is a reflection of the rhetorical and cognitive sophistication needed to assess, compare, and present printed materials especially without a long term, virtually professional familiarity with the subject.

Bloom defines synthesis as "the putting together of elements and parts so as to form a whole, . . . to constitute a pattern or structure not clearly there before" (p. 162). As a pre-
lude to the research paper, guided research projects involving the definition, collection, and organization of data, and the interpretation of that data expressed in a thesis statement exercise all the components of synthesis. For instance, students might collect all the names of a particular product (say, cigarettes) to reach some insights about the process of naming. Although simpler than the traditional library research paper, such projects, culminating as they do in all the processes of theorizing, reflects the cumulative nature of the cognitive hierarchy.

Level VI. Evaluation, Determining Quality

In practice, Bloom recognizes synthesis as the most complex of the cognitive skills. Evaluation, appearing last in the hierarchy, stands as an ideal rather than a real achievement. Bloom qualifies its placement this way:

Although evaluation is placed last in the cognitive domain, because it is regarded as requiring to some extend all the other categories of behavior, it is not necessarily the last step in thinking or problem solving. It is quite possible that the evaluative process will in some cases be the prelude to the acquisition of new knowledge, a new attempt at comprehension or application, or a new analysis and synthesis. (p. 185)

In other words, one’s beliefs, well-founded or not, about a subject’s worth or value often determine not just the level of cognitive activity one is willing to engage in but even whether to attend to the subject or ignore it.

Consequently, in an ideal sense, evaluation occurs only when individuals employ both internal evidence (consistency and coherence) and external evidence (consideration of standards, ethics, aesthetic principles) as the basis for judgments about value or worth. In this respect, argument and persuasion seem to constitute genuine evaluation. From Bloom’s perspective they are appropriately considered the most complex of expository forms because they make the greatest demands on a writer’s ability to manage subject, audience, and role. But Bloom’s uneasiness over the actual uses of evaluation is substantiated by Kunen, Cohen, and Solman’s 1981 study of the taxonomy. These researchers conclude, “since Evaluation activities are more concerned with considering the value, worth, or appropriateness of given information than with the
construction of new information, as is the goal in synthetic tasks, ... the Evaluation category does not represent the cumulative contributions of all the preceding levels and is inappropriately placed at the top of the hierarchy.\textsuperscript{22}

If evaluation is not at the top of the hierarchy, where is it? Immature writers seem overly prone to evaluate, usually by imposing their preconceptions and values on new experiences or ideas in ways that preclude further inquiry and preserve egocentricity. Personal opinion is mistaken for argument and conclusion, personal preference for understanding and analysis, and "padding" for development.

However, if attending to experience is essentially an evaluative act, then evaluation is not just the peak of the taxonomy but its base. In the process of decentering our thinking, we expand the boundaries of what is significant or worthwhile, a necessary condition for broadening our reservoir of knowledge. Moreover, at each stage in the hierarchy, decisions about value determine whether one engages in that stage or remains with the familiar. Cognitive growth, then, depends not just on understanding and employing specific operations but also on recognizing and defining the underlying personal standards that make each operation possible. In this respect, one moves toward Bloom's ideal definition of evaluation by exploring its real manifestations throughout the cognitive scale. (See Figure 2).

\begin{figure}[h]
\centering
\includegraphics[width=0.5\textwidth]{Evaluation.png}
\caption{Evaluation and the Cognitive Hierarchy}
\end{figure}
In writing instruction, the point is not to reinforce the tendency to make premature and restrictive evaluations, as the too-early writing of position papers probably does. Instead, it is to integrate a movement toward objectivity and self-awareness with the development of cognitive operations. When this occurs, students are more prepared to use writing to discover and explore new ideas because they have a clearer sense of what is cognitively possible.

The research on cognitive development in young adults makes a strong case for the cognitive needs of college writers, needs that have probably never been marginally satisfied or perhaps considered in designing and organizing writing courses. Bloom's taxonomy provides one model of thought structures and their relationships; there are others. Their value lies in evoking questions about cognitive sequences, about the effect of a curriculum in stimulating development, and about alternative curriculum designs.

As we come to understand the pivotal role of writing as a mediator, across the curriculum, between learning and thinking, models of sequential development suggests that we can strengthen the impact of writing on the learning process. As yet, applications of the taxonomy need to be tentative and exploratory, its categories rooted more in soil than in concrete to cultivate, not rigidify their possibilities. At worst, the taxonomy can degenerate into a set of formulae for "The Knowledge Paper," "The Application Paper," and so on. This response would simply repeat the failings of "The Definition Paper" or "The Comparison/Contrast Theme," manifesting as it does another version of the delusion that thinking, like writing, can be reduced to discrete skills, masterable once and operative for all time. At best, however, the taxonomy offers an epistemological structure that makes available to teachers and learners the varieties of cognitive processes and their relationships in ways that promise clarification of intellectual goals and the paths one follows to reach them.

Most of all, the taxonomy allows us to contemplate the value and feasibility of a cognition-based curriculum in writing. Such a curriculum would reflect the hierarchical relations of the various thought processes and would help to control for cognitive complexity in writing and thinking about distorting natural discourse. In this form, writing or writing-intensive courses would systematically develop students' thinking skills rather than leaving them to chance or, worse, blunting the writer's
still-developing ability to explore and express ideas. In short, a
cognition-based curriculum ensures that students participate
fully in using writing as a mode of learning.

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NOTES

1Janet Emig, "Writing as a Mode of Learning," College Composition
and Communication 28 (May 1977), pp. 122-127 and William Innscher,
"Writing as a Way of Learning and Developing," College Composition and
Communication 30 (October 1979), pp. 240-244.

2See for example James Moffett, Active Voice: A Writing Program
Across the Curriculum and A Student Centered Language Arts Curriculum, K-13
(Montclair, NJ: Boynton/Cook, 1981); Stephen Judy, The Creative Word (NY:
Random House School Division, 1973, 1974), six volumes, grades 7-12; and J. W.
Patrick Creber, Sense and Sensitivity (London: University of London Press,
1965).

3Stephen Judy, Explorations in the Teaching of English, 2nd ed (New

4The details of Piaget's theory are well known, but for a useful
summary see Roger W. Bybee and Robert Sund, Piaget for Educators, 2nd ed.
(Columbus, OH: Charles E. Merrill, 1982). William Perry's work is best
studied in Forms of Intellectual and Ethical Development in the College Years:
A Scheme (NY: Holt, Rinehard, and Winston, 1970); Lawrence Kohlberg's
work appears in a number of articles, many of which are assembled in
Collected Papers on Moral Development and Moral Education (Cambridge,
MA: Moral Education and Research Foundation, Harvard University Graduate
School of Education, 1973). James Moffett's most theoretical statement is
contained in Teaching the Universe of Discourse (Boston: Houghton Mifflin,
1968); James Britton's work is best studied in The Development of Writing

5Toby Fulwiler, "Writing: An Act of Cognition," in Teaching Writing in

6Benjamin S. Bloom, Taxonomy of Educational Objectives, Handbook I:
delineated three taxonomies (cognitive, affective, and psychomotor) only the
cognitive taxonomy is of concern here.

7See, for example, Seth Kunen, et al., "A Levels of Processing Analysis
202-211. To date, this is the most recent and comprehensive study of the cognitive taxonomy.


12Freedman and Pringle, p. 322.


14In "Building Cognitive Skills for Basic Writers," I detail the structure and implications of a sequential curriculum for basic writers based on Bloom's Taxonomy, especially focusing on these students' distinctive problems with writing. See *Teaching English in the Two-Year College* 9 (Winter 1982), pp. 91-98. In another article, I present a more empirical study of writing development in a basic writing program established on this model. See "Toward a Comprehensive Language Curriculum," *The Writing Center Journal*, 2 (Fall/Winter 1982), pp. 34-47. Finally, in a study still underway, I compare writing development in two humanities courses for freshmen, both following sequences based on Bloom, with that of a freshman composition course. Naturally, although many other variables affect the outcomes of different courses, an analysis of text coherence focusing on students' use of transitional markers between sentence and paragraphs suggests that students are writing more sophisticated texts under the sequential curricula.


18 Applebee, p. 90.
20 *Teaching the Universe of Discourse*, p. 24 (Moffett's italics).
21 Kunen, et al., p. 208.