A Behavioral Approach to the Teaching of Composition

Julie S. Vargas
Department of Educational Psychology
West Virginia University

Poor writing hinders most professionals daily. We struggle through articles in our fields, trying to extract meaning from the tangle of jargon and gobbledygook which confronts us. We spend hours with students, working to pull order out of pages of disorganized ideas. In business, executives write so poorly that companies like AT & T spend thousands of dollars training them to condense information so that they use only one page for what used to take three ("Teaching the Boss," 1976). Colleges find their entering students ill-prepared to write. Malcolm Scully (1976), in an article in the *Chronicle of Higher Education*, describes the situation today as a "writing crisis". (p. 1)

The inability of students to write well is not new. In the very first issue of *The English Journal*, Hopkins reported (1912),

Every year thousands of pupils drift through the schools, half-cared for in English classes where they should have constant and encouraging personal attention, and neglected in other classes where their English should be watched over at least incidentally, to emerge in a more or less damaged linguistic condition, incapable of meeting satisfactorily the simplest practical demands on their powers of expression. Much money is spent, valuable teachers are worn out at an inhumanly rapid rate, and results are inadequate or totally lacking. From any point of view — that of taxpayer, teacher, or pupil — such a situation is intolerable. (p. 1)

We have tolerated the situation for quite awhile now. We still do not teach students to communicate effectively on paper.

Most of us not only struggle with what others write, we also find it difficult to put down words ourselves. Many successful writers avoid writing or find it aversive. Virginia Graham (1978), for example, says,

I do not like writing, although I like having written (a hen who has just laid an egg would know what I mean). So I let the least little thing distract me. I welcome aeroplanes in the sky and pigeons courting on the roofs, and poodles in tartan collars being taken for walks. I love the doorbell to ring. I love to be rung up and asked silly questions. Halfway through a sentence my eye is caught by a falling leaf or a rising star, and in the middle of a beautiful thought I sometimes wonder if the potatoes would be nicer fried or mashed. (p. 20)

Why is it so painful to write? Why don't we learn to communicate more effectively? There are no doubt many reasons, but one, I suspect, lies in how we were taught to write.

Writing is taught by giving assignments and correcting papers. The use of the term "correcting" is no accident, since teachers traditionally respond mainly to the parts of a composition which need improvement (England, 1975). Figure 1, for example, shows a paper as it was returned to Lisa, a fourth grader. Note that all of the comments her teacher made refer to things that are wrong. The responses that Lisa received, like the responses most students

Figure 1. Example of a corrected theme.

at all levels of education receive, tend to be punishing. The association between red pencil and failure is so longstanding that many students flinch when receiving a paper covered with *positive* comments.

In correcting papers, teachers not only hunt for mistakes, but they also look at the structural or formal properties of the composition, rather than responding to the ideas expressed by the writer. If you look back at Lisa's corrected paper you can see that every "correction" refers to spelling or form.

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The teacher does not respond to what Lisa had to say about snow. Similarly, comments on sentence structure, style, and even suggestions on thematic development, refer to the form of a composition, rather than to the message conveyed. Comments of that kind in a conversation would be devastating. Imagine saying to a teacher, "I want to really think about the choices before choosing a topic. Really far out, some of them," and receiving the reply, "Split infinitive. Slang. Incomplete sentence." Yet that is what you would receive if your comments had been written for an assignment. Your teacher would have corrected your statement instead of replying to it.

Lisa's teacher is one of the best teachers I have met. Her behavior in teaching reflects a long tradition of analyzing writing from the structural perspective of grammar and linguistics. This approach breaks down the products produced by writers into structural parts and then draws out the relationships which normally occur among them. Thus we have the introduction, the development, the conclusions, or, within sentences, the subject, the verb, clauses, adverbs, adjectives, dangling modifiers, and so on. The whole field of grammar, and most of English Composition, approaches the teaching of writing by analyzing the structure of written products.

Writing is, however, first of all behavior, and we can analyze it like any other behavior. A complete account requires three terms, the writing response itself, the situation in which it occurs, and the effect of the product on a reader. Rather than analyzing the structure of compositions, then, we must concentrate on the variables controlling writers as they write, and on the effect of their writing upon a reader.

Taking a behavioral perspective changes the way we view the teaching of writing. Instead of talking to students about their writing, we must set up contingencies under which students see directly how their writing communicates. The readers of students' works must respond as readers, not as correctors.

In Spring of 1977, I decided to try a behavioral approach to teaching writing. I offered a small graduate seminar in professional writing, and also got together with Mrs. Michaels to teach a creative writing unit in her sixth grade class. The problem, as I saw it, was to design exercises for each way in which language functions so that students could see, from the reaction of their readers, how well their writing got across.

The various ways in which language affects a reader are described in Skinner's *Verbal Behavior* (1957), and I used the book as a checklist to make sure that I considered all of them. I did not try to design a complete curriculum, but rather to find exercises which would illustrate how, in a normal classroom setting, a behavioral approach would proceed.

The Mand: Writing Directions

Skinner (1957) categorizes verbal behavior according to the functional control it is under. His first major category, the mand, is verbal behavior which is "reinforced by a characteristic consequence and is therefore under the functional control of relevant conditions of deprivation or aversive stimulation" (pp. 35-36). A mand is successful if the reader does, roughly speaking, what the writer wants.¹ Because of the characteristic response each one produces, the category includes directions, questions, and even riddles. While the writer of a riddle may be pleased if the reader cannot immediately get the riddle, guessing takes a common form which reinforces primarily the writer. As Skinner puts it, "A mand 'specifies' its reinforcement" (p. 36).

An effective mand enables the reader to be successful at performing the task the writer specifies. Writers must use language which will be understood or, like Epimonandas' aunt who left pies cooling on the porch with the direction, "Mind you be careful, Epimonandas, how you step in these pies," they will be surprised at the effect of their words. Epimonandas, as you remember, stepped very carefully — once — in each pie.

To see the effectiveness of directions, writers need to watch someone trying to follow what they have written, so Mrs. Michaels and I designed a two-part assignment. We asked students, first, to "Write directions for something you know how to do, but something which your classmates don't know how to do", and second, to "bring in any necessary equipment, pair off with another student, and try out each others' directions". I tried the same assignment we designed for the sixth graders with my graduate students.

The students chose quite a variety of tasks for their directions (see Table 1). I had intended that,

¹For the purpose of this article, definitions will be of *written* verbal behavior. Those in the book, *Verbal behavior*, are more general and refer to all verbal behavior.

during the tryout period, the writer not communicate orally with the direction-follower at all. If the readers performed badly, the writer was to rewrite on the spot until the directions alone effec-

Table 1
Some of the Topics Chosen for the Assignment on
Writing Directions for a Classmate to Follow

Topics Chosen	
By the sixth graders	By the graduate students
Diaper a baby	Knit
Shave	Tie a fishhook onto fish-
Put on makeup	line using a Palomar
Fold a paper airplane	Knot
Jump on pogo stick	
Make tacos	
Hold a saxophone	
Put on pantyhose	
Operate a Polaroid camera	

tively guided the reader. I followed this procedure in the graduate class, but in the sixth grade, each student read and followed the directions in front of the whole class. One student, Tommy, had written, "Put some shaving cream into your hand." Sarah, his partner, squirted an enormous amount of shaving cream into her cupped hand. Tommy stared at the white glob, wide-eyed. Sarah continued reading, "Put it onto your face", and clapped her hand to her forehead, leaving a great horn of shaving cream hanging down between her eyes. As the laughing subsided, Tommy said, "I guess I forgot to say where." Unlike the sixth graders, the graduate students refused responsibility for ineffective directions. They attributed poor performance to weakness in their readers, saying, "Read what it *SAYS*", or, "No, you didn't read it *right*. — Read *that* part again." Reminded of the rules of the game, the direction-writers started rewriting and continued changing their directions until their partners mastered the tasks.

The Tact: Descriptive Writing

The immediate response of a reader in doing what we prescribe controls a relatively small part of what we write. Much more writing depends upon the world we experience. Skinner coined the word tact to describe verbal behavior in which "a response of a given form is evoked (or at least strengthened) by a particular object or event or pro-

perty of an object or event" (Skinner, 1957, p. 82). We think of written tacts as descriptions.

The writer of description is more under the control of the stimuli he or she is describing than the writer of directions, who is under the control of a fairly specific deprivation which a reader can reduce. For example, in writing the description, "The plant has a new leaf," a person is responding more to the new leaf, than to what he or she wants the reader to do. In contrast, the mand, "Please water the plant" is written because there is something specific that the reader can provide. To put it another way, the mand reinforces mostly the writer, while the tact reinforces primarily the reader.

Good description enables your readers to experience what you experienced. If you describe something well, your readers will respond to what you saw or felt in much the same way you responded to the original event. You can help your readers to respond effectively by noting the details which made your experience unique. For example, in the following passage, Hemmingway makes Nick's situation come alive by describing it in specific and concrete detail (1938).

The Train went on up the track out of sight, around one of the hills of burnt timber. Nick sat down on the bundle of canvas and bedding the baggage man had pitched out of the door of the baggage car. There was no town, nothing but the rails and the burned-over country. The thirteen saloons that had lined the one street of Seney had not left a trace. The foundations of the Mansion House Hotel stuck up above the ground. The stone was chipped and split by the fire. It was all that was left of the town of Seney. Even the surface had been burned off the ground.

Nick looked at the burned-over stretch of hillside, where he had expected to find the scattered houses of the town and then walked down the railroad track to the bridge over the river. The river was there. It swirled against the log piles of the bridge. Nick looked down into the clear, brown water, colored from the pebbly bottom, and watched the trout keeping themselves steady in the current with wavering fins. As he watched them they changed their positions by quick angles, only to hold steady in the fast water again. Nick watched them . . . (p. 307)

While you and I might have an experience like Nick's, and, like Nick go look at a stream, we would probably not notice the sudden shift by the trout and thus could not write about it. There is a difference (as Sherlock Holmes was fond of saying) between looking and seeing. To write good description, then, we must first notice details ourselves. Then, later, when we write, those same details must still have strong control over the words we write and the order in which we write them.

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Table 3
Some Exercises to Teach the Tact

Writing Assignment	Reader's Response
1. <i>For the sixth graders</i> Describe your house, apartment, or trailer in detail, using words to paint a picture.	Draw a picture of the house. (Writers can also draw a picture, for comparison).
2. Describe an animal (either real or made up)	Make the animal from clay
3. Describe something scary on one side of your paper. On the other side describe something sad. <i>Some Variations:</i> Describe two fictional people, one selfish, one vain. Describe two pieces of music, for example two popular hits. The discriminations can be easy or difficult. "Sad" and "depressing," for example are closer than "sad" and "scary."	Read both stories and write "scary" at the top of the one which was scary and "sad" at the top of the one which was sad.
4. Put about a half teaspoon of tempa paint in the middle of a piece of paper and fold it in half, smoothing over the part with the paint to make it spread. Open it back up and you will find a blob. Take 2 more sheets of paper and make two more blobs the same way. Choose one of the blobs and write a description of what you see. When the paint is dry, paperclip your description and all three blobs together.	Read the description and see if you can choose the blob which was described.
5. Draw a name from a box containing names of your classmates. Make sure it is not your own name. Describe as many good qualities as you can think of that this person has. Do not use physical appearance. You must not name the person, but you can use the words "he" or "she".	Name the person described. Note: This can be done by the whole class at once by having students number their papers and then read each description aloud while the students write down the name of the person they think is being described.
6. Add on to a story. (One person starts a story but stops after a few sentences. The next reads what's there and adds on. Ghost stories are the most fun. Most students stop in the middle of a sentence to make it harder for the next person.)	Add on to what is already written.
<i>For the graduate students.</i>	
7. Describe a piece of experimental apparatus, or an experimental setting.	Sketch the apparatus or setting.
8. In one paragraph describe a study (as in a review of the literature). Then give it to someone who hasn't read the original.	Describe the study orally, noting who did what with whom using words a child would understand or Ask questions until you can visualize what happened.
9. Write information in headline style — that is, using fewest and shortest words possible.	Write the complete sentence.

Exercises for Teaching Description

A good description allows readers to visualize what we are describing. One exercise, then, could be to have readers draw what writers describe. Mrs. Michaels and I asked the sixth grade students to "Describe your house, apartment, or trailer, using words to paint a picture," and I asked the graduate students to describe a piece of apparatus or an experimental setting. In both classes, students swapped papers with someone unfamiliar with what they had described, and then drew a picture of what they visualized from the description. In the sixth grade, students also drew their own

houses, hiding their pictures until their partners had completed drawing from their descriptions. They then posted their descriptions with the two drawings.

Both classes worked steadily at the exercises. One sixth grader, Tommy, who was a poor reader, needed prompting during the writing part of the class. He would raise his hand, saying, "I can't think of anything else." When asked, "Well, what color is your house?", Tommy would respond, "Oh yeah, it's gray with green trim", and then add an additional sentence. Two minutes later he would raise his hand again. Another question would

prompt another sentence. When the drawing part came, however, Tommy worked steadily, drew two fine pictures, and thumbtacked them up with the associated descriptions. Several students looked at Tommy's description with his drawing and that of his partner, saying, "Wow, that's good. Who did that one?" Tommy smiled and proudly claimed his ownership.

One other student caught my attention. He was probably the best reader in the class, and he had a large vocabulary. He wrote a series of directions with precise measurements in centimeters, resulting in a description so complex that the drawing by his reader was a mess of lines and erasures. The language he used, which before had earned praise from impressed teachers, did not communicate well to peers.

In addition to describing how things look, a writer must be able to tact other properties. Jenkinson and Seybold, in a book called *Writing as a Process of Discovery* (1970), outline a series of exercises designed to help students persuade a reader of their own age to react to their home neighborhood in the same manner as they themselves react. Before writing, students answer the question, "What is special about my block, farm, housing project, or community: What, if anything, makes it different from other blocks, farms, housing projects or communities?" (p.21) By noting concrete details of sights, sounds, and smells, which distinguish one setting from others, students break out of longstanding habits of writing words upon words, and pay new attention to what they are describing.

By including unique details, writers enable their readers to discriminate between the particular episodes they are describing and other similar happenings in other writings. Any test of a reader's ability to discriminate, then, measures effectiveness of description and can be used to teach the tact (see Table 3). The writer's task may be to describe one of a number of people, situations, moods, abstract shapes, and so forth, so that a reader can identify the one the writer chose. For variety, readers might reproduce the content of their partner's descriptions in another form, for example by translating a newspaper headline, drawing a picture, or modeling a figure in clay. In all of the exercises, the writers must provide enough detail for their readers to make the required discriminations.

Factors Interfering With Tact Control

It is hard to remain under control of what we are describing because other factors also control our

behavior when we write. Other verbal stimuli, such as words and phrases we have heard or read, intrude upon our recollections. We may sit down to describe an experience — but find ourselves repeating what others have said about similar experiences, rather than responding to the unique features of what we saw, felt, heard, tasted, or smelled. Or we may start a sentence — but find that the words with which we complete it seem to flow automatically from what we have already written, rather than coming from the characteristics of what we are describing. These two kinds of verbal control, imitative and intraverbal, interfere with good description because we no longer respond, as we write, with the details which will effectively communicate our experiences.

Imitative Behavior

It is not surprising that imitation is strong in writers. Our first words are imitative. In school, we learn to write by copying letters and words. As we progress, we are reinforced for compositions which look like the teacher's or like passages from our books. Many children learn to write reports by selective copying, like one fourth grader I found laboriously copying sentences from an array of open books. When I asked, "What are you doing?" the child stuck his finger on the sentence he was copying and, looking up, replied, "We have to write reports. We are supposed to find things about the Civil War and write them down. Only we can't take all our sentences from one book." While we later learn not to copy whole sentences, we remain under strong imitative control. We are likely to be reinforced by peers, editors, and even government reviewing boards, for repeating terms and phrases used by other successful writers.

When we imitate, we are under control of the form of what we reproduce. To take an extreme example, when we copy the sentence, "Juliet is like the sun," we produce words which correspond one to one with those in the sentence. The meaning of what we write is irrelevant during the process of copying because we are not, at that point, under the kind of tact control Shakespeare was under when he first wrote the sentence. Similarly, to the extent that we repeat what others have said, or even what we ourselves have previously written, the unique details of what we are describing lose control.

Intraverbal Control

Description suffers not only from strong imitative control but also from intraverbal control. When we

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Table 2
Example of Faults in Writing Due to Excessive
Control by Verbal Stimuli

Fault	Example	Analysis
Imitative Behavior		
1. Plagiarism	(A passage is copied without credit)	In copying, control is formal point-to-point correspondence. At the time of writing, the writer is not under tact control of the subject.
2. Redundancy (copying from oneself)	"The professor is making the student work too hard — harder than the student should have to work."	In redundancy, a writer repeats a point, echoing words already used. In the example, the redundant words "harder" "student", and "work", occur (instead of other words) because of the presence, in the writer's immediate environment, of the similar words he or she has just written.
Intraverbal Control		
1. Cliches	"Dark as a tomb"	We call a phrase a "cliche" when the strength of part of it comes from the rest, rather than being under tact control. In this example, "as a tomb" derives its strength from association with the word "dark" rather than from the object or scene described.
2. Gobbledygook	"At the present time we are experiencing precipitation." (<i>Translation:</i> "It is raining . . .") ^a	Gobbledygook is a term coined by congressman Maury Maverick to describe writing in polysyllables where simpler words will do. In gobbledygook, the direct tact is replaced by words deriving strength from other polysyllabic words.
3. Jargon and excessive use of abstractions	"For the variable responses to extinction, five of the six subjects extinguished faster following . . ." (<i>Revision:</i> Five of the six preschool children pushed the button fewer times following . . .) "The company implemented changes which should have increased productivity." <i>Revision:</i> The managers sped up the assembly line.)	One cannot visualize what happened in these two examples because abstract terms cropped up from seeds in earlier pages, displacing the concrete words which would have come from stronger tact control. The revisions provide those words.
4. Wordiness	"It was used for fuel purposes." ^b "He is a man who" ^b	Extra words occur because of their association with a word already written. In the first example, "purposes" is unnecessary, but occurs because of the intraverbal chain, "used . . . purposes". Similarly "is a man who" is prompted by the word, "He". Both sentences would be stronger without the extra words.
5. Forced Rhymes	"Pinocchio, In telling lies, Obtained a nose He could not disguise"	The necessity of rhyming, in the example, forced the use of "disguise" instead of the more direct word "hide". "Hide" would also have scanned better.
6. Straying off the topic	"Camps can be fun. This summer I went to camp Wildacre with my brother. My brother is older than me and he"	In the example, the writer strays off the topic when the word "brother" exerts intraverbal control over the sentences which follow.

^aThis example of gobbledygook was taken from Zinsser, 1976, p. 14.

^bThese examples of extra words were taken from Strunk and White, 1972, p. 18

complete the phrase, "dark as a . . ." we are under intraverbal control. We are not imitating, since the word "tomb" is not there to copy. Rather, the first two words of a familiar phrase prompt the rest. Strong intraverbal control produces clichés, gobbledygook, jargon, excessive use of abstractions, wordiness, and, in poetry, forced rhymes. "Dark as a tomb" for example, has become a cliché because "as a tomb" is more likely to come from its association with the word "dark" than from the tomb-like quality of what the writer is describing. Gobbledygook, a word coined by an exasperated congressman to refer to the stringing together of polysyllabic words (Chase, 1954), also reveals strong intraverbal control. An example is "At the present time, we are experiencing precipitation". If rain were the main stimulus controlling the writer, he or she would be more likely to say, "It is raining". The strength of the polysyllabic words lies in other factors, one of which is intraverbal control.

Jargon and excessive use of abstractions, like gobbledygook, refer to writing in which intraverbal control displaces control by the concrete characteristics of an event. Where the writer of gobbledygook uses polysyllables, however, the writer of jargon uses terms from his or her technical field. In the behavioral sciences, for example, we learn words like reinforcement, extinction, contingency, and so on. Later, when describing an instance of reinforcement or extinction, we tend to use the general terms instead of the more concrete ones. Here is an example, "First I assessed the base behavior of the target population, then I found a suitable reinforcer, and made it contingent upon the desirable behavior until the change reached my objectives. Then I phased out the reinforcement procedure". This description contributes no new information for a reader in the behavioral sciences, because it could apply equally well to thousands of studies. It omits even such basic considerations as whether the writer was working with people or with animals. If you try, for a moment, to visualize the person who wrote the description in the process of writing, you can imagine someone reeling off sentences almost absentmindedly, the intraverbal control is so strong.

Several other weaknesses in description can be traced to dominant intraverbal control (see Table 2). In poetry, if the necessity of rhyming with a word already written takes precedence over a contribution to what the poem is about, we get a forced rhyme. On a larger scale, writers stray off the topic when a phrase or term they have written leads to a side issue at the expense of the "main point".

Style

We can write effective directions and descriptions and still be dull. Something besides clarity and precision makes writing enjoyable to read. We call it style.

Whenever we write, many factors affect the particular words we put down. The quality of our style depends upon the number and balance of these factors. We have seen how some poor style, such as clichéd writing or gobbledygook, can be traced to a dominant source of control. It is not so easy to identify the factors which control *good* style, partly because it is their very subtlety that makes the writing good.

Good style in writing is marked by "humor" and "creativity," both of which depend upon multiple stimulus control over the writer (Skinner, 1957; Sloane, Della Piana and Delo, 1977). We can see two sources of control clearly in puns, which are funny when the weaker association is not so strong that we also thought of it, but strong enough so that we "get" it. Creative writing, like humor, results from the writer responding to more than one stimulus so that creativity lies in a controlling relation rather than in the form of the resulting product. Sloane, et al. (1970) give the example of two suitors writing to a person who has rejected them. The first suitor writes:

I phoned you every day for a month and you would never speak to me. I waited outside your house and you ignored me. I sent you presents which you returned. Nothing I did had any effect. I sent romantic love notes which you tore up. I tried and tried without results.

The second writes:

Waves washed endlessly on the shore ignored by sand, as I by you (p. 9)

The authors point out that the second note would be judged more creative than the first because we assume that the writer responded to more stimuli when writing it. Where the first writer wrote primarily under the narrow control of what happened, the second suitor responded not only to his frustrating courtship, but to events he had experienced at the seashore which shared, with his courting, the characteristics of energy expended without results. We call the product creative, even though it is not the passage which is creative but the writer's response to many variables when writing. Had the writer copied the passage, thus responding to the restricted stimulus of the original source, we would feel very differently about his or her creativity.

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The exercises so far discussed should help students to write precise mandos or tacts, but they are not likely to produce writing like the second suitor's note. We cannot teach students to write creatively simply by providing reacting readers. Instead, we must somehow expand the number of stimuli to which students respond as they write. Sloane, et. al. (1976) provide an example of how a behavioral approach would proceed, in their description of Della Piana's course on the writing of poetry (p. 16-23). The course teaches students to write creatively through exercises which strengthen weak associations already in each student's repertoire. The exercises build, step by step, the kinds of relationships which are necessary for alliteration, assonance, consonance, onomatopoeia, metaphor, and simile, all of which require responding to more than one stimulus at a time.

The Role of Intraverbal Control in Good Style

Good writers not only draw out relationships between features of their world, as in metaphor, but they also write in a consistent style. An ear for tone and mood requires sensitivity to what is already written, bringing the writer under a kind of intraverbal control somewhat like that which interferes with clear descriptive writing. The same source of control which, when strong, produces gobbledygook, contributes, when balanced with other influences, to the consistency which makes writing flow well.

Many teachers ask their students to write in different styles, providing models for them to follow, but then switch the control away from textural variables by correcting the compositions which students turn in. We need to set up contingencies under which students respond more to style than to what the teacher will say. In adopting an author's style, students try to make their sentences indistinguishable from those of the model writer, so that a reader couldn't tell the styles apart. Why not, then, give each student a passage by a different author and challenge him or her to copy the selection, adding one sentence so that a peer cannot tell which one they added? As a teacher, you would need many different paragraphs, and the students would have to copy all of the sentences which the original author wrote, but the exercise should help develop an ear for style not only through writing, but also through hunting for the sentence which someone else added.

The Writer as Audience

The reaction of an audience is critical in a behavioral approach to teaching writing. The audience we have been talking about is students' peers, but there are times when the primary audience is ourselves. We take notes to remember things. We write to clarify ideas, or to discover what we have to say, and our effectiveness depends on how our writing changes our own behavior.

It is easier to write about a situation while still in it than later, in its absence. If we jot down notes while under strong stimulus control, it is more likely that later, when writing, we will remember the details upon which good description is built. Even for abstract ideas, stimuli are important. At the time we have an insight, a particular combination of stimuli is present which may never occur again. If we do not write our idea down, we risk losing it, and later remember only that we had a great idea. Notes supply prompts which bring us back under some of the controlling variables responsible for the idea in the first place.

The procedure of notetaking can be very simple. Skinner, for example, always carries a little spiral notebook. Whenever and wherever something interests him — during a meal in a Chinese restaurant, walking down Brattle street to his office, reading reviews of movies in the daily paper — he pulls out the tattered notebook and scribbles a few words in it. When the notebook is full, he takes it to his home office, tears out the sheets and files each one by topic. Later, when he starts to write a paper he looks at all the relevant scraps of paper, bringing himself under the multiple stimulus control of ideas, examples, and questions he thought of over a time span which may go back several years. The strong prompts from his own notes make it likely that he will have something worthwhile to say.

To teach good notetaking, we must set up the proper contingencies. Harold Cohen (1972) designed a remedial summer program to teach students to take good notes while they were learning other subject matter. For the first hour of the daily session, half of the students attended one lecture and half attended another with different content. During the second hour each student met with a student from the other class, and taught that student what he or she had just learned, using notes taken during the lectures. Both students were then tested only on the content they had learned from the other student. When someone had a problem because his or her partner couldn't remember the material, the partner went to the teacher for addi-

tional information, returning ready to teach again. Each student, in other words, was responsible for getting his or her partner to pass the test. The notes students took during the lectures were for themselves, but their effectiveness at prompting material from the lecture was immediately apparent during tutoring.

You can use Cohen's model in a regular classroom by splitting your class in two and using two 20-minute filmstrips instead of lectures. The filmstrips should teach something your students are not likely to know, so that they have to learn it from their partners. Tests should be taken and graded to provide consequences for learning how to take effective notes.

To get students to write for themselves, you may first need to get them to write for other reasons. I suggested that my graduate students keep a notebook and a diary, and that they write in each one daily. I hoped that what they learned from their daily writing would be so valuable that they would continue to write from then on. It wasn't. The students reported that they quit because what they wrote was trivial or uninteresting. To keep students writing until they stop worrying about how others will judge what they have to say, some teachers simply make writing in a journal part of the requirements for a course, checking only to make sure that pages are filled. As the semester progresses, the instructors find that students start to get excited about what they have to say, and in many cases ask their teachers to read it.

Summary

Teachers traditionally teach writing by giving assignments and hunting for errors in what students produce. Those who learn composition through having their papers corrected come under extremely strong control of the "critical audience" variable, so much so that writing becomes aversive. While the comments that teachers make on the structure of compositions are valuable, particularly during the process of editing, they should not displace other sources of control which are at least as important for effective communication. A behavioral analysis of writing not only helps identify the variables which produce good and bad writing, but it also provides principles for establishing contingencies for teaching writing. I have described exercises designed to bring students under some of the kinds of controlling variables Skinner describes in his book *Verbal Behavior*. The exercises are not

intended as a prescription for teaching, but rather as an illustration of how various contingencies could be arranged within a normal classroom. By introducing exercises based on behavioral principles into the schools, we could restore the balance of variables controlling our students so that they not only write better, but do so with some of the delight and enthusiasm with which young children put their first words on paper.

Change will no doubt be difficult for those of us used to correcting papers. Last spring a first grader came up to me after school eager to show me a picture she had drawn. It was a picture of a house with three distinct stories above ground level and one story below ground. Next to each section of the house was a label: ADICK, UPSTARES, DOUNSTARES, and BASEMINT. I was impressed by the child's first attempts at writing, and said something like, "That's really nice. You've got an aad . . . attic, an upstairs, a downstairs, and a basement." I hesitated, then, with a shock, realized that I was about to add, "But you spell 'attic, A-T-".

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