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Rigid Rules, Inflexible Plans, and the Stifling of Language: A Cognitivist Analysis of Writer's Block

Mike Rose

Ruth will labor over the first paragraph of an essay for hours. She'll write a sentence, then erase it. Try another, then scratch part of it out. Finally, as the evening winds on toward ten o'clock and Ruth, anxious about tomorrow's deadline, begins to wind into herself, she'll compose that first paragraph only to sit back and level her favorite exasperated interdiction at herself and her page: "No. You can't say that. You'll bore them to death."

Ruth is one of ten UCLA undergraduates with whom I discussed writer's block, that frustrating, self-defeating inability to generate the next line, the right phrase, the sentence that will release the flow of words once again. These ten people represented a fair cross-section of the UCLA student community: lower-middle-class to upper-middle-class backgrounds and high schools, third-world and Caucasian origins, biology to fine arts majors, C+ to A- grade point averages, enthusiastic to blasé attitudes toward school. They were set off from the community by the twin facts that all ten could write competently, and all were currently enrolled in at least one course that required a significant amount of writing. They were set off among themselves by the fact that five of them wrote with relative to enviable ease while the other five experienced moderate to nearly immobilizing writer's block. This blocking usually resulted in rushed, often late papers and resultant grades that did not truly reflect these students' writing ability. And then, of course, there were other less measurable but probably more serious results: a growing distrust of their abilities and an aversion toward the composing process itself.

What separated the five students who blocked from those who didn't? It wasn't skill; that was held fairly constant. The answer could have rested in the emotional realm—anxiety, fear of evaluation, insecurity, etc. Or perhaps blocking in some way resulted from variation in cognitive style. Perhaps, too, blocking originated in and typified a melding of emotion and cognition not unlike the relationship posited by Shapiro between neurotic feeling and

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neurotic thinking.¹ Each of these was possible. Extended clinical interviews and testing could have teased out the answer. But there was one answer that surfaced readily in brief explorations of these students' writing processes. It was not profoundly emotional, nor was it embedded in that still unclear construct of cognitive style. It was constant, surprising, almost amusing if its results weren't so troublesome, and, in the final analysis, obvious: the five students who experienced blocking were all operating either with writing rules or with planning strategies that impeded rather than enhanced the composing process. The five students who were not hampered by writer's block also utilized rules, but they were less rigid ones, and thus more appropriate to a complex process like writing. Also, the plans these non-blockers brought to the writing process were more functional, more flexible, more open to information from the outside.

These observations are the result of one to three interviews with each student. I used recent notes, drafts, and finished compositions to direct and hone my questions. This procedure is admittedly non-experimental, certainly more clinical than scientific; still, it did lead to several inferences that lay the foundation for future, more rigorous investigation: (a) composing is a highly complex problem-solving process² and (b) certain disruptions of that process can be explained with cognitive psychology's problem-solving framework. Such investigation might include a study using "stimulated recall" techniques to validate or disconfirm these hunches. In such a study, blockers and non-blockers would write essays. Their activity would be videotaped and, immediately after writing, they would be shown their respective tapes and questioned about the rules, plans, and beliefs operating in their writing behavior. This procedure would bring us close to the composing process (the writers' recall is stimulated by their viewing the tape), yet would not interfere with actual composing.

In the next section I will introduce several key concepts in the problem-solving literature. In section three I will let the students speak for themselves. Fourth, I will offer a cognitivist analysis of blockers' and non-blockers' grace or torpor. I will close with a brief note on treatment.

Selected Concepts in Problem Solving: Rules and Plans

As diverse as theories of problem solving are, they share certain basic assumptions and characteristics. Each posits an *introductory period* during which a problem is presented, and all theorists, from Behaviorist to Gestalt to Information Processing, admit that certain aspects, stimuli, or "functions" of the problem must become or be made salient and attended to in certain ways if successful problem-solving processes are to be engaged. Theorists also believe that some conflict, some stress, some gap in information in these perceived "aspects" seems to trigger problem-solving behavior. Next comes a

processing period, and for all the variance of opinion about this critical stage, theorists recognize the necessity of its existence—recognize that man, at the least, somehow “weighs” possible solutions as they are stumbled upon and, at the most, goes through an elaborate and sophisticated information-processing routine to achieve problem solution. Furthermore, theorists believe—to varying degrees—that past learning and the particular “set,” direction, or orientation that the problem solver takes in dealing with past experience and present stimuli have critical bearing on the efficacy of solution. Finally, all theorists admit to a *solution period*, an end-state of the process where “stress” and “search” terminate, an answer is attained, and a sense of completion or “closure” is experienced.

These are the gross similarities, and the framework they offer will be useful in understanding the problem-solving behavior of the students discussed in this paper. But since this paper is primarily concerned with the second stage of problem-solving operations, it would be most useful to focus this introduction on two critical constructs in the processing period: rules and plans.

Rules

Robert M. Gagné defines “rule” as “an inferred capability that enables the individual to respond to a class of stimulus situations with a class of performances.”³ Rules can be learned directly⁴ or by inference through experience.⁵ But, in either case, most problem-solving theorists would affirm Gagné’s dictum that “rules are probably the major organizing factor, and quite possibly the primary one, in intellectual functioning.”⁶ As Gagné implies, we wouldn’t be able to function without rules; they guide response to the myriad stimuli that confront us daily, and might even be the central element in complex problem-solving behavior.

Dunker, Polya, and Miller, Galanter, and Pribram offer a very useful distinction between two general kinds of rules: algorithms and heuristics.⁷ Algorithms are precise rules that will always result in a specific answer if applied to an appropriate problem. Most mathematical rules, for example, are algorithms. Functions are constant (e.g., pi), procedures are routine (squaring the radius), and outcomes are completely predictable. However, few day-to-day situations are mathematically circumscribed enough to warrant the application of algorithms. Most often we function with the aid of fairly general heuristics or “rules of thumb,” guidelines that allow varying degrees of flexibility when approaching problems. Rather than operating with algorithmic precision and certainty, we search, critically, through alternatives, using our heuristic as a divining rod—“if a math problem stumps you, try working backwards to solution”; “if the car won’t start, check x, y, or z,” and so forth. Heuristics won’t allow the precision or the certitude afforded by algorithmic operations; heuristics can even be so “loose” as to be vague. But in a world where tasks and problems are rarely mathematically precise, heuristic rules

become the most appropriate, the most functional rules available to us: "a heuristic does not guarantee the optimal solution or, indeed, any solution at all; rather, heuristics offer solutions that are good enough most of the time."⁸

Plans

People don't proceed through problem situations, in or out of a laboratory, without some set of internalized instructions to the self, some program, some course of action that, even roughly, takes goals and possible paths to that goal into consideration. Miller, Galanter, and Pribram have referred to this course of action as a plan: "A plan is any hierarchical process in the organism that can control the order in which a sequence of operations is to be performed" (p. 16). They name the fundamental plan in human problem-solving behavior the TOTE, with the initial T representing a *test* that matches a possible solution against the perceived end-goal of problem completion. O represents the clearance to *operate* if the comparison between solution and goal indicates that the solution is a sensible one. The second T represents a further, post-operation, *test* or comparison of solution with goal, and if the two mesh and problem solution is at hand the person *exits* (E) from problem-solving behavior. If the second test presents further discordance between solution and goal, a further solution is attempted in TOTE-fashion. Such plans can be both long-term and global and, as problem solving is underway, short-term and immediate.⁹ Though the mechanistic nature of this information-processing model renders it simplistic and, possibly, unreal, the central notion of a plan and an operating procedure is an important one in problem-solving theory; it at least attempts to metaphorically explain what earlier cognitive psychologists could not—the mental procedures (see pp. 390-391) underlying problem-solving behavior.

Before concluding this section, a distinction between heuristic rules and plans should be attempted; it is a distinction often blurred in the literature, blurred because, after all, we are very much in the area of gestating theory and preliminary models. Heuristic rules seem to function with the flexibility of plans. Is, for example, "If the car won't start, try x, y, or z" a heuristic or a plan? It could be either, though two qualifications will mark it as heuristic rather than plan. (A) Plans subsume and sequence heuristic and algorithmic rules. Rules are usually "smaller," more discrete cognitive capabilities; plans can become quite large and complex, composed of a series of ordered algorithms, heuristics, and further planning "sub-routines." (B) Plans, as was mentioned earlier, include criteria to determine successful goal-attainment and, as well, include "feedback" processes—ways to incorporate and use information gained from "tests" of potential solutions against desired goals.

One other distinction should be made: that is, between "set" and plan. Set, also called "determining tendency" or "readiness,"¹⁰ refers to the fact that people often approach problems with habitual ways of reacting, a pre-

disposition, a tendency to perceive or function in one way rather than another. Set, which can be established through instructions or, consciously or unconsciously, through experience, can assist performance if it is appropriate to a specific problem,¹¹ but much of the literature on set has shown its rigidifying, dysfunctional effects.¹² Set differs from plan in that set represents a limiting and narrowing of response alternatives with no inherent process to shift alternatives. It is a kind of cognitive habit that can limit perception, not a course of action with multiple paths that directs and sequences response possibilities.

The constructs of rules and plans advance the understanding of problem solving beyond that possible with earlier, less developed formulations. Still, critical problems remain. Though mathematical and computer models move one toward more complex (and thus more real) problems than the earlier research, they are still too neat, too rigidly sequenced to approximate the stunning complexity of day-to-day (not to mention highly creative) problem-solving behavior. Also, information-processing models of problem-solving are built on logic theorems, chess strategies, and simple planning tasks. Even Gagné seems to feel more comfortable with illustrations from mathematics and science rather than with social science and humanities problems. So although these complex models and constructs tell us a good deal about problem-solving behavior, they are still laboratory simulations, still invoked from the outside rather than self-generated, and still founded on the mathematico-logical.

Two Carnegie-Mellon researchers, however, have recently extended the above into a truly real, amorphous, unmathematical problem-solving process—writing. Relying on protocol analysis (thinking aloud while solving problems), Linda Flower and John Hayes have attempted to tease out the role of heuristic rules and plans in writing behavior.¹³ Their research pushes problem-solving investigations to the real and complex and pushes, from the other end, the often mysterious process of writing toward the explainable. The latter is important, for at least since Plotinus many have viewed the composing process as unexplainable, inspired, infused with the transcendent. But Flower and Hayes are beginning, anyway, to show how writing generates from a problem-solving process with rich heuristic rules and plans of its own. They show, as well, how many writing problems arise from a paucity of heuristics and suggest an intervention that provides such rules.

This paper, too, treats writing as a problem-solving process, focusing, however, on what happens when the process dead-ends in writer's block. It will further suggest that, as opposed to Flower and Hayes' students who need more rules and plans, blockers may well be stymied by possessing rigid or inappropriate rules, or inflexible or confused plans. Ironically enough, these are occasionally instilled by the composition teacher or gleaned from the writing textbook.

“Always Grab Your Audience”—The Blockers

In high school, *Ruth* was told and told again that a good essay always grabs a reader's attention immediately. Until you can make your essay do that, her teachers and textbooks putatively declaimed, there is no need to go on. For Ruth, this means that beginning bland and seeing what emerges as one generates prose is unacceptable. The beginning is everything. And what exactly is the audience seeking that reads this beginning? The rule, or Ruth's use of it, doesn't provide for such investigation. She has an edict with no determiners. Ruth operates with another rule that restricts her productions as well: if sentences aren't grammatically “correct,” they aren't useful. This keeps Ruth from toying with ideas on paper, from the kind of linguistic play that often frees up the flow of prose. These two rules converge in a way that pretty effectively restricts Ruth's composing process.

The first two papers I received from *Laurel* were weeks overdue. Sections of them were well written; there were even moments of stylistic flair. But the papers were late and, overall, the prose seemed rushed. Furthermore, one paper included a paragraph on an issue that was never mentioned in the topic paragraph. This was the kind of mistake that someone with Laurel's apparent ability doesn't make. I asked her about this irrelevant passage. She knew very well that it didn't fit, but believed she had to include it to round out the paper. “You must always make three or more points in an essay. If the essay has less, then it's not strong.” Laurel had been taught this rule both in high school and in her first college English class; no wonder, then, that she accepted its validity.

As opposed to Laurel, *Martha* possesses a whole arsenal of plans and rules with which to approach a humanities writing assignment, and, considering her background in biology, I wonder how many of them were formed out of the assumptions and procedures endemic to the physical sciences.¹⁴ Martha will not put pen to first draft until she has spent up to two days generating an outline of remarkable complexity. I saw one of these outlines and it looked more like a diagram of protein synthesis or DNA structure than the time-worn pattern offered in composition textbooks. I must admit I was intrigued by the aura of process (vs. the static appearance of essay outlines) such diagrams offer, but for Martha these “outlines” only led to self-defeat: the outline would become so complex that all of its elements could never be included in a short essay. In other words, her plan locked her into the first stage of the composing process. Martha would struggle with the conversion of her outline into prose only to scrap the whole venture when deadlines passed and a paper had to be rushed together.

Martha's “rage for order” extends beyond the outlining process. She also believes that elements of a story or poem must evince a fairly linear structure and thematic clarity, or—perhaps bringing us closer to the issue—that analysis of a story or poem must provide the linearity or clarity that seems to be

absent in the text. Martha, therefore, will bend the logic of her analysis to reason ambiguity out of existence. When I asked her about a strained paragraph in her paper on Camus' "The Guest," she said, "I didn't want to admit that it [the story's conclusion] was just hanging. I tried to force it into meaning."

Martha uses another rule, one that is not only problematical in itself, but one that often clashes directly with the elaborate plan and obsessive rule above. She believes that humanities papers must scintillate with insight, must present an array of images, ideas, ironies gleaned from the literature under examination. A problem arises, of course, when Martha tries to incorporate her myriad "neat little things," often inherently unrelated, into a tightly structured, carefully sequenced essay. Plans and rules that govern the construction of impressionistic, associational prose would be appropriate to Martha's desire, but her composing process is heavily constrained by the non-impressionistic and non-associational. Put another way, the plans and rules that govern her exploration of text are not at all synchronous with the plans and rules she uses to discuss her exploration. It is interesting to note here, however, that as recently as three years ago Martha was absorbed in creative writing and was publishing poetry in high school magazines. Given what we know about the complex associational, often non-neatly-sequential nature of the poet's creative process, we can infer that Martha was either free of the plans and rules discussed earlier or they were not as intense. One wonders, as well, if the exposure to three years of university physical science either established or intensified Martha's concern with structure. Whatever the case, she now is hamstrung by conflicting rules when composing papers for the humanities.

Mike's difficulties, too, are rooted in a distortion of the problem-solving process. When the time of the week for the assignment of writing topics draws near, Mike begins to prepare material, strategies, and plans that he believes will be appropriate. If the assignment matches his expectations, he has done a good job of analyzing the professor's intentions. If the assignment *doesn't* match his expectations, however, he cannot easily shift approaches. He feels trapped inside his original plans, cannot generate alternatives, and blocks. As the deadline draws near, he will write something, forcing the assignment to fit his conceptual procrustian bed. Since Mike is a smart man, he will offer a good deal of information, but only some of it ends up being appropriate to the assignment. This entire situation is made all the worse when the time between assignment of topic and generation of product is attenuated further, as in an essay examination. Mike believes (correctly) that one must have a plan, a strategy of some sort in order to solve a problem. He further believes, however, that such a plan, once formulated, becomes an exact structural and substantive blueprint that cannot be violated. The plan offers no alternatives, no "sub-routines." So, whereas Ruth's, Laurel's, and some of Martha's difficulties seem to be rule-specific ("always catch your audience," "write grammatically"), Mike's troubles are more global. He may

have strategies that are appropriate for various writing situations (e.g., "for this kind of political science assignment write a compare/contrast essay"), but his entire approach to formulating plans and carrying them through to problem solution is too mechanical. It is probable that Mike's behavior is governed by an explicitly learned or inferred rule: "Always try to 'psych out' a professor." But in this case this rule initiates a problem-solving procedure that is clearly dysfunctional.

While Ruth and Laurel use rules that impede their writing process and Mike utilizes a problem-solving procedure that hamstrings him, *Sylvia* has trouble deciding which of the many rules she possesses to use. Her problem can be characterized as cognitive perplexity: some of her rules are inappropriate, others are functional; some mesh nicely with her own definitions of good writing, others don't. She has multiple rules to invoke, multiple paths to follow, and that very complexity of choice virtually paralyzes her. More so than with the previous four students, there is probably a strong emotional dimension to Sylvia's blocking, but the cognitive difficulties are clear and perhaps modifiable.

Sylvia, somewhat like Ruth and Laurel, puts tremendous weight on the crafting of her first paragraph. If it is good, she believes the rest of the essay will be good. Therefore, she will spend up to five hours on the initial paragraph: "I won't go on until I get that first paragraph down." Clearly, this rule—or the strength of it—blocks Sylvia's production. This is one problem. Another is that Sylvia has other equally potent rules that she sees as separate, uncomplementary injunctions: one achieves "flow" in one's writing through the use of adequate transitions; one achieves substance to one's writing through the use of evidence. Sylvia perceives both rules to be "true," but several times followed one to the exclusion of the other. Furthermore, as I talked to Sylvia, many other rules, guidelines, definitions were offered, but none with conviction. While she *is* committed to one rule about initial paragraphs, and that rule is dysfunctional, she seems very uncertain about the weight and hierarchy of the remaining rules in her cognitive repertoire.

"If It Won't Fit My Work, I'll Change It"—The Non-blockers

Dale, Ellen, Debbie, Susan, and Miles all write with the aid of rules. But their rules differ from blockers' rules in significant ways. If similar in content, they are expressed less absolutely—e.g., "*Try* to keep audience in mind." If dissimilar, they are still expressed less absolutely, more heuristically—e.g., "I can use as many ideas in my thesis paragraph as I need and then develop paragraphs for each idea." Our non-blockers do express some rules with firm assurance, but these tend to be simple injunctions that free up rather than restrict the composing process, e.g., "When stuck, write!" or "I'll write what I can." And finally, at least three of the students openly shun the very textbook rules that some blockers adhere to: e.g., "Rules like 'write only

what you know about' just aren't true. I ignore those." These three, in effect, have formulated a further rule that expresses something like: "If a rule conflicts with what is sensible or with experience, reject it."

On the broader level of plans and strategies, these five students also differ from at least three of the five blockers in that they all possess problem-solving plans that are quite functional. Interestingly, on first exploration these plans seem to be too broad or fluid to be useful and, in some cases, can barely be expressed with any precision. Ellen, for example, admits that she has a general "outline in [her] head about how a topic paragraph should look" but could not describe much about its structure. Susan also has a general plan to follow, but, if stymied, will quickly attempt to conceptualize the assignment in different ways: "If my original idea won't work, then I need to proceed differently." Whether or not these plans operate in TOTE-fashion, I can't say. But they do operate with the operate-test fluidity of TOTEs.

True, our non-blockers have their religiously adhered-to rules: e.g., "When stuck, write," and plans, "I couldn't imagine writing without this pattern," but as noted above, these are few and functional. Otherwise, these non-blockers operate with fluid, easily modified, even easily discarded rules and plans (Ellen: "I can throw things out") that are sometimes expressed with a vagueness that could almost be interpreted as ignorance. There lies the irony. Students that offer the least precise rules and plans have the least trouble composing. Perhaps this very lack of precision characterizes the functional composing plan. But perhaps this lack of precision simply masks habitually enacted alternatives and sub-routines. This is clearly an area that needs the illumination of further research.

And then there is feedback. At least three of the five non-blockers are an Information-Processor's dream. They get to know their audience, ask professors and T.A.s specific questions about assignments, bring half-finished products in for evaluation, etc. Like Ruth, they realize the importance of audience, but unlike her, they have specific strategies for obtaining and utilizing feedback. And this penchant for testing writing plans against the needs of the audience can lead to modification of rules and plans. Listen to Debbie:

In high school I was given a formula that stated that you must write a thesis paragraph with *only* three points in it, and then develop each of those points. When I hit college I was given longer assignments. That stuck me for a bit, but then I realized that I could use as many ideas in my thesis paragraph as I needed and then develop paragraphs for each one. I asked someone about this and then tried it. I didn't get any negative feedback, so I figured it was o.k.

Debbie's statement brings one last difference between our blockers and non-blockers into focus; it has been implied above, but needs specific formulation: the goals these people have, and the plans they generate to attain these goals, are quite mutable. Part of the mutability comes from the fluid way the goals and plans are conceived, and part of it arises from the effective impact of feedback on these goals and plans.

Analyzing Writer's Block

Algorithms Rather Than Heuristics

In most cases, the rules our blockers use are not “wrong” or “incorrect”—it is good practice, for example, to “grab your audience with a catchy opening” or “craft a solid first paragraph before going on.” The problem is that these rules seem to be followed as though they were algorithms, absolute dicta, rather than the loose heuristics that they were intended to be. Either through instruction, or the power of the textbook, or the predilections of some of our blockers for absolutes, or all three, these useful rules of thumb have been transformed into near-algorithmic urgencies. The result, to paraphrase Karl Dunker, is that these rules do not allow a flexible penetration into the nature of the problem. It is this transformation of heuristic into algorithm that contributes to the writer's block of Ruth and Laurel.

Questionable Heuristics Made Algorithmic

Whereas “grab your audience” could be a useful heuristic, “always make three or more points in an essay” is a pretty questionable one. Any such rule, though probably taught to aid the writer who needs structure, ultimately transforms a highly fluid process like writing into a mechanical lockstep. As heuristics, such rules can be troublesome. As algorithms, they are simply incorrect.

Set

As with any problem-solving task, students approach writing assignments with a variety of orientations or sets. Some are functional, others are not. Martha and Jane (see footnote 14), coming out of the life sciences and social sciences respectively, bring certain methodological orientations with them—certain sets or “directions” that make composing for the humanities a difficult, sometimes confusing, task. In fact, this orientation may cause them to misperceive the task. Martha has formulated a planning strategy from her predisposition to see processes in terms of linear, interrelated steps in a system. Jane doesn't realize that she can revise the statement that “committed” her to the direction her essay has taken. Both of these students are stymied because of formative experiences associated with their majors—experiences, perhaps, that nicely reinforce our very strong tendency to organize experiences temporally.

The Plan that Is Not a Plan

If fluidity and multi-directionality are central to the nature of plans, then the plans that Mike formulates are not true plans at all but, rather, inflexible and static cognitive blueprints.¹⁵ Put another way, Mike's “plans” represent a re-

stricted “closed system” (vs. “open system”) kind of thinking, where closed system thinking is defined as focusing on “a limited number of units or items, or members, and those properties of the members which are to be used are known to begin with and do not change as the thinking proceeds,” and open system thinking is characterized by an “adventurous exploration of multiple alternatives with strategies that allow redirection once ‘dead ends’ are encountered.”¹⁶ Composing calls for open, even adventurous thinking, not for constrained, no-exit cognition.

Feedback

The above difficulties are made all the more problematic by the fact that they seem resistant to or isolated from corrective feedback. One of the most striking things about Dale, Debbie, and Miles is the ease with which they seek out, interpret, and apply feedback on their rules, plans, and productions. They “operate” and then they “test,” and the testing is not only against some internalized goal, but against the requirements of external audience as well.

Too Many Rules—“Conceptual Conflict”

According to D. E. Berlyne, one of the primary forces that motivate problem-solving behavior is a curiosity that arises from conceptual conflict—the convergence of incompatible beliefs or ideas. In *Structure and Direction in Thinking*,¹⁷ Berlyne presents six major types of conceptual conflict, the second of which he terms “perplexity”:

This kind of conflict occurs when there are factors inclining the subject toward each of a set of mutually exclusive beliefs. (p. 257)

If one substitutes “rules” for “beliefs” in the above definition, perplexity becomes a useful notion here. Because perplexity is unpleasant, people are motivated to reduce it by problem-solving behavior that can result in “disequalization”:

Degree of conflict will be reduced if either the number of competing . . . [rules] or their nearness to equality of strength is reduced. (p. 259)

But “disequalization” is not automatic. As I have suggested, Martha and Sylvia hold to rules that conflict, but their perplexity does *not* lead to curiosity and resultant problem-solving behavior. Their perplexity, contra Berlyne, leads to immobilization. Thus “disequalization” will have to be effected from without. The importance of each of, particularly, Sylvia’s rules needs an evaluation that will aid her in rejecting some rules and balancing and sequencing others.

A Note on Treatment

Rather than get embroiled in a blocker’s misery, the teacher or tutor might

interview the student in order to build a writing history and profile: How much and what kind of writing was done in high school? What is the student's major? What kind of writing does it require? How does the student compose? Are there rough drafts or outlines available? By what rules does the student operate? How would he or she define "good" writing? etc. This sort of interview reveals an incredible amount of information about individual composing processes. Furthermore, it often reveals the rigid rule or the inflexible plan that may lie at the base of the student's writing problem. That was precisely what happened with the five blockers. And with Ruth, Laurel, and Martha (and Jane) what was revealed made virtually immediate remedy possible. Dysfunctional rules are easily replaced with or counter-balanced by functional ones if there is no emotional reason to hold onto that which simply doesn't work. Furthermore, students can be trained to select, to "know which rules are appropriate for which problems."¹⁸ Mike's difficulties, perhaps because plans are more complex and pervasive than rules, took longer to correct. But inflexible plans, too, can be remedied by pointing out their dysfunctional qualities and by assisting the student in developing appropriate and flexible alternatives. Operating this way, I was successful with Mike. Sylvia's story, however, did not end as smoothly. Though I had three forty-five minute contacts with her, I was not able to appreciably alter her behavior. Berlyne's theory bore results with Martha but not with Sylvia. Her rules were in conflict, and perhaps that conflict was not exclusively cognitive. Her case keeps analyses like these honest; it reminds us that the cognitive often melds with, and can be overpowered by, the affective. So while Ruth, Laurel, Martha, and Mike could profit from tutorials that explore the rules and plans in their writing behavior, students like Sylvia may need more extended, more affectively oriented counseling sessions that blend the instructional with the psychodynamic.

Notes

1. David Shapiro, *Neurotic Styles* (New York: Basic Books, 1965).
2. Barbara Hayes-Ruth, a Rand cognitive psychologist, and I are currently developing an information-processing model of the composing process. A good deal of work has already been done by Linda Flower and John Hayes (see p. 393 of this article). I have just received—and recommend—their "Writing as Problem Solving" (paper presented at American Educational Research Association, April, 1979).
3. *The Conditions of Learning* (New York: Holt, Rinehart and Winston, 1970), p. 193.
4. E. James Archer, "The Psychological Nature of Concepts," in H. J. Klausmeier and C. W. Harris, eds., *Analysis of Concept Learning* (New York: Academic Press, 1966), pp. 37-44; David P. Ausubel, *The Psychology of Meaningful Verbal Behavior* (New York: Grune and Stratton, 1963); Robert M. Gagné, "Problem Solving," in Arthur W. Melton, ed., *Categories of Human Learning* (New York: Academic Press, 1964), pp. 293-317; George A. Miller, *Language and Communication* (New York: McGraw-Hill, 1951).
5. George Katona, *Organizing and Memorizing* (New York: Columbia Univ. Press, 1940); Roger N. Shepard, Carl I. Hovland, and Herbert M. Jenkins, "Learning and Memorization of

Classifications," *Psychological Monographs*, 75, No. 13 (1961) (entire No. 517); Robert S. Woodworth, *Dynamics of Behavior* (New York: Henry Holt, 1958), chs. 10-12.

6. *The Conditions of Learning*, pp. 190-91.

7. Karl Dunker, "On Problem Solving," *Psychological Monographs*, 58, No. 5 (1945) (entire No. 270); George A. Polya, *How to Solve It* (Princeton: Princeton University Press, 1945); George A. Miller, Eugene Galanter, and Karl H. Pribram, *Plans and the Structure of Behavior* (New York: Henry Holt, 1960).

8. Lyle E. Bourne, Jr., Bruce R. Ekstrand, and Roger L. Dominowski, *The Psychology of Thinking* (Englewood Cliffs, N.J.: Prentice-Hall, 1971).

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12. James L. Adams, *Conceptual Blockbusting* (San Francisco: W. H. Freeman, 1974); Edward DeBono, *New Think* (New York: Basic Books, 1958); Ronald H. Forgus, *Perception* (New York: McGraw-Hill, 1966), ch. 13; Abraham Luchins and Edith Hirsch Luchins, *Rigidity of Behavior* (Eugene: Univ. of Oregon Books, 1959); N. R. F. Maier, "Reasoning in Humans. I. On Direction," *Journal of Comparative Psychology*, 10 (1920), 115-43.

13. "Plans and the Cognitive Process of Writing," paper presented at the National Institute of Education Writing Conference, June 1977; "Problem Solving Strategies and the Writing Process," *College English*, 39 (1977), 449-61. See also footnote 2.

14. Jane, a student not discussed in this paper, was surprised to find out that a topic paragraph can be rewritten after a paper's conclusion to make that paragraph reflect what the essay truly contains. She had gotten so indoctrinated with Psychology's (her major) insistence that a hypothesis be formulated and then left untouched before an experiment begins that she thought revision of one's "major premise" was somehow illegal. She had formed a rule out of her exposure to social science methodology, and the rule was totally inappropriate for most writing situations.

15. Cf. "A plan is flexible if the order of execution of its parts can be easily interchanged without affecting the feasibility of the plan . . . the flexible planner might tend to think of lists of things he had to do; the inflexible planner would have his time planned like a sequence of cause-effect relations. The former could rearrange his lists to suit his opportunities, but the latter would be unable to strike while the iron was hot and would generally require considerable 'lead-time' before he could incorporate any alternative sub-plans" (Miller, Galanter, and Pribram, p. 120).

16. Frederic Bartlett, *Thinking* (New York: Basic Books, 1958), pp. 74-76.

17. *Structure and Direction in Thinking* (New York: John Wiley, 1965), p. 255.

18. Flower and Hayes, "Plans and the Cognitive Process of Writing," p. 26.

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In "Further Notes on Legal Writing," *CCC*, 31 (February, 1980), I neglected to acknowledge my debt to William P. Statsky's *Introduction to Paralegalism* (St. Paul: West Publishing Company, 1974), p. 521. The first problem in my article, pages 59-60, owes its structure to an example in Statsky's book.

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