

Reading Incomprehension

Some students have to be taught how to pry the meaning out of dense text.

By Arthur Whimbey

If a serious literary critic were to write a favorable, full-length review of *How Could I Tell Mother She Frightened My Boy Friends Away?*, Grace Plumbuster's new story, his startled readers would assume either that he had gone mad or that Grace Plumbuster was his editor's wife.*

This was the first sentence of a reading comprehension article, and I had to stop for a moment and reread a portion of it in order to understand its meaning completely.

Not so the low-aptitude student I was testing. He was halfway down the page by the time I had the details of the first sentence sorted out. I asked him if he had understood the sentence, and he answered, "No, not really."

So I suggested he give it another try. He examined it for a while, but then said he could not get it. So we probed at it together, first discussing whether the pronoun *his* (third word from the end) referred to the startled reader, to the author Plumbuster, or to the critic, and we eventually got the entire picture clarified.

Why was the student unable to comprehend this sentence? Not because the concepts are too abstract or theoretical, but because the sentence requires multiple steps and sequential interpretations. First one point has to be clarified and then the reader can proceed to the next step.

The good reader does this in such a habitual manner that he is hardly aware of these mental activities. Only when he meets with an especially intricate or confusing series of ideas does his sequential sorting become "intentional" and conscious.

To the poor reader, however, the pattern of gradual, sequential con-

struction of exact meaning is totally foreign. One-shot thinking is the basis on which the poor reader makes interpretations and draws conclusions.

The inferior reader is unpractised and incapable of seeing relations embodied in difficult text. The form of this inability bears some similarity to the ineptitude of a novice biology student looking through a microscope.

Just as the novice biology student has not learned how to direct his attention to resolving the conundrum he finds on a laboratory slide, the inferior reader has not learned how to attend to meaning — how to make a detailed analysis of verbal ideas.

Both microscopy and comprehension are attentional skills, and both are trainable. However, the admonition to "pay attention" is not very helpful in training either skill. And in the case of reading, the advice to "read slower" or to "read more carefully" is also, by itself insufficient.

The student needs guidance of the type described on the next page in teaching academic thinking. He must be taught *how* to attend to meaning; he needs to learn exactly what the constituent mental activities are.

The primary and distinctive mark of a good reader is that he continuously seeks to construct an accurate picture of a writer's intent.

Full comprehension begins with attention to every single word, every phrase, and every sentence of the material. Words that are familiar are immediately understood. Less familiar words and phrases are translated into comfortable synonyms or perhaps into instantaneous and fleeting images.

A good reader proceeds smoothly and quickly as long as his understanding of the material is complete. But as soon as he senses that he has missed an idea, that the track has been lost, he brings smooth progress to a grinding halt.

Advancing more slowly, he seeks clarification in the subsequent material, examining it for the light it can throw on the earlier trouble spot. If still dissatisfied with his grasp, he returns to the point where the difficulty began and rereads the section more carefully.

He probes and analyses phrases and sentences for their exact meaning; he tries to visualize abstruse descriptions; and through a series of approximations, deductions, and corrections, he translates scientific and technical terms into concrete examples.

The mental activities involved in reading a legal contract or a physics textbook illustrate these operations well. Detecting the exaggeration in the following sentence is not difficult, but it does demonstrate the process of translating verbal symbols into other forms.

The hurricane raged with such fury that palm trees leaned 98 degrees from the vertical.

In checking their understanding of this sentence, many good readers in effect visualize some image of the vertical — perhaps picturing actual palm trees — and then, by making an arc of more than 90 degrees, come to recognize the full power of the storm.

A major difficulty of low-aptitude students is their failure to convert abstract or unfamiliar terms and phrases into concrete and intelligible ideas. The steps of careful comparison and deduction through which this is accomplished are what low-aptitude students must be taught.

(Dr. Whimbey, with co-author Myra J. Linden, is author of Teaching and Learning Grammar: The Prototype-Construction Approach, handbook for improving reading comprehension. www.bgfperformance.com)

* Gruber, G.R. *Reading Interpretation in Social Studies, Natural sciences and Literature, 1971*

Reading Comprehension

This experiment piloted a method for training adult academic capacity.

By Arthur Whimbey

A quarter of a century ago, Bloom and Broder (B&B) published a report¹ that should have served as a model for a new wave of research in training mental ability. The time, however, was not ripe.

B&B's study had two parts. First, a thorough analysis was made of the mental activities characterizing college students with high and low academic aptitudes. Then, based on these results, a remedial program was developed for training academic thinking ability.

To begin with, college students with low scores on academic aptitude examinations were tested individually on a series of academic reasoning problems. They were asked to think aloud while solving the problems so that their thinking activities could be monitored.

A contrast group of students with high academic aptitude scores was also tested in this manner. They too reported introspectively — fully describing their thoughts and their methods of solution — while attempting to solve the same series of problems.

B&B found that each student showed a definite consistency in the way he approached and solved the various problems. The habitual problem-solving behaviour of low-aptitude college students was characteristically different from that of high-aptitude students.

And what is most interesting, this difference corresponds strongly to the contrasting mental habits of low- and high-aptitude *preschoolers*.

The cognitive profile of low-aptitude college students (as well as preschoolers) has two prominent features — features that are, in a sense, mirror images of each other.

First, there is one-shot thinking, rather than extended, sequential construction of understanding.

Second, there is a willingness to allow gaps of knowledge to exist — in effect, an attitude of indifference toward achieving an accurate and complete comprehension of situations and relations.

The low-aptitude students were mentally careless and superficial in solving problems, often rushing through instructions, or even skipping them.

In problem solving, they were almost completely passive in their thinking, spending little time considering a question, frequently choosing on the basis of simply a feeling, an impression, or a guess.

Once they had isolated the habitual thinking deficiencies of low-aptitude students, B&B developed a remedial training program. The introspective reports of extremely capable students served as the primary teaching materials.

The actual training was conducted with under-achieving university students who volunteered for the remedial program. Training was carried out on an individual basis and began with two sessions to familiarize the trainee with the procedure.

Beginning with the third sessions, the student attempted to solve a problem while thinking aloud, his verbalized solution was reviewed and discussed, and then the protocol of a model solution to the problem was read. The student was then asked to make a list of the differences between his solution and that of the model.

In the sessions that followed, the time was divided between practice in acquiring the approach used by the model and comparison and analysis of solution protocols.

During practice, the student thought aloud as he solved problems, frequently referred to the list he had made of differences between his methods and the model's, and tried to apply general principles derived from the list.

The trainer continually reminded the student to evaluate his approach and to consider the steps he thought the model would take to solve the problem at hand.

B&B noted that, initially, low-aptitude students were primarily interested in *what* the right answer to a question was, rather than *how* it was obtained. Gradually, the students learned to focus on the mental activities and steps leading to a solution.

No standardized tests of academic aptitude or IQ were used in evaluating the effects of the training, since B&B's primary interest was raising achievement through the improvement of thinking skills.

Comparison with various control groups indicated that grades on comprehensive examinations did increase to a statistically-significant degree — such as to allow these students, who had originally been on probation, to continue in college.

Marked changes in academic performance were reported by professors in whose courses the students were registered. And evidence of improvement was seen in the alteration of problem-solving methods.

The students read instructions more carefully, making a directed effort to understand them completely. They approached problems more actively — they began with what they understood, set up hypotheses, reasoned sequentially in steps, and so on.

B&B's remedial program was admittedly only a pilot experiment. However, the results of their study supply a picture of low academic aptitude that agrees with and adds to that painted by other researchers.

As it becomes clearer that intelligence is a teachable skill, the need for improved methods of training that skill should become clear to all.

(Adapted with permission from Intelligence Can be Taught, E.P. Dutton & Co., 1975)

¹ Benjamin Bloom and Lois Broder, *The Problem-Solving Processes of College Students*, 1950