THINKING ABOUT TEACHING AND LEARNING

Developing Habits of Learning with First Year College and University Students

Robert Leamnson

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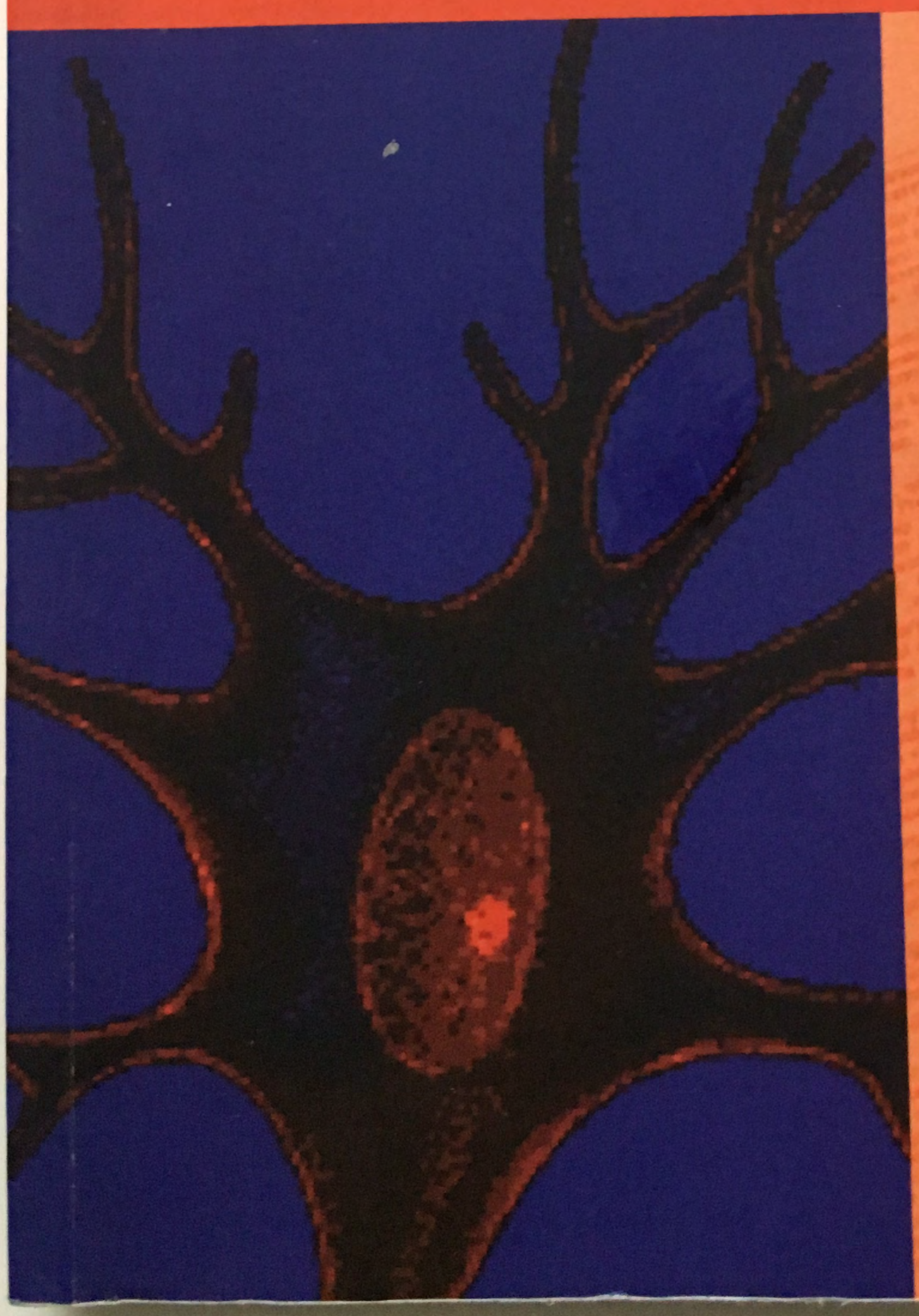

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LANGUAGE

get them to think! but how

Thinking is the mind talking to itself.

—*Plato*

learning = student doin something to their brain
teaching = trying to get them to do it

If learning is students doing something to their brains, and teaching is trying to get them to do it, what is this something? At one level, what needs doing is fairly intuitive. The most junior assistant professor can sometimes be heard to say that what he wants to do in his courses is to teach students to think. That kind of declaration is not going to initiate a debate, or even much of a conversation. Older faculty usually mutter something like, "Um . . . yes," and rustle their newspapers. Now and then an old curmudgeon might unpack a bit of heavy irony and thank the junior for taking this innovative approach, reckoning that his success will relieve the rest of the faculty of a great burden. Why is it that experienced teachers struggle continually with the "thinking" problem while the newer faculty seem to find it an innovative approach that can be brought off through desire and good will?

Teaching Thinking

Certainly, thinking is what learning is all about. Teaching, however, is what teachers do, and the abiding question has always been what a teacher can do to make a student think. However enthusiastically they set out to teach think-

How?

ing directly, most teachers soon come to realize that their own clear, logical thinking will not rub off magically onto their students.

But clear thinking remains the goal. If pedagogy is to have an influence it must, directly or indirectly, encourage and facilitate student thinking. The argument to be developed here is that a better approach is the indirect one. The idea that you can directly teach someone else to think is based on two assumptions: that the subject is initially incapable of thinking; and that once he has the knack he will be permanently empowered. I will argue that both of these assumptions are questionable.

Anyone who is not neurologically impaired to the point of unconsciousness not only can, but does think, and thinks a lot. Normal humans are all capable of even that special kind of thinking we prize so highly and call "critical." If we do not always see evidence for it, we would quite naturally wonder whether it is really going on. I would only argue that the operative word there is "evidence." Thinking, after all, cannot be observed directly. Sometimes a frozen stance and a distant look suggest that thinking is taking place, but there is no way to observe directly the actual thoughts anyone is having.

Language—The Window to the Mind

The real evidence for thought clearly is language. But there is a belief, widespread if not always articulated, that thought and language are more or less interchangeable. This assumption is best exemplified by the companion belief that students who cannot speak or write with some fluency are likewise impaired in their thinking ability. I held some version of this belief for many years. When students gave me the "I know it but I can't say it" line, I thundered back, "If you can't say it, then you *don't* know it." During all that time it never entered my mind that I might be wrong.

I'm considerably less sure of myself now. I have come to appreciate the work of the Russian psychologist Lev Vygotsky, who showed many years ago that pre-verbal children were doing a lot of thinking, some of it quite logical (see Kozulin 1990). Recent experiments have shown that even infants exhibit unusual interest, perhaps shock, when shown optical illusions that depict physically impossible events (Pinker 1997). These studies, widely spaced in time, present evidence that thought, of considerable subtlety, can precede the ability to articulate those thoughts. If thought and the capacity for

articulating it are not intrinsically linked, then these must be separable talents that might or might not develop concurrently. The consequences here are significant. As teachers we can only deduce that a student is not thinking critically on the basis of evidence, but that evidence can only be some form of language use. If language use and thinking are separable talents, we may well be drawing an incorrect conclusion when we judge the inarticulate student to be deficient in critical thinking ability.

Vygotsky further demonstrated that language acquisition allows thought to become verbal and imposes a powerful organizing influence on it. Later, the work of Parry, Luria, Havelock, and Ong (reported in Ong 1982) showed that the invention of writing had an equally powerful influence on speech and even the way people think.

The intent here is to show that language—spoken, signed, or written—is the only way we can detect thought. When we say students can't think we are making tacit assumptions that their language skills are adequate, and that the students, out of spite or laziness, are not engaging their mental apparatus. A more defensible and hopeful model would be the belief that the power of thought pre-exists and that it becomes organized, explicit, and detectable through language, and only through language. This model is a hopeful one because language facility can be learned, improved, and taught. A teacher attempting the converse—teaching thinking skills to students who can't deal with language—would be at a loss as to how to start or how to measure success.

The studies and observations referred to above have led me, at last, to look upon the apparently indifferent student with less pique and more empathy. I now ask myself whether she is really indifferent, lazy, or recalcitrant—might it be that she only reads, writes, and speaks poorly?

These are not novel ideas. Readers who know Postman and Weingartner's (1969) quirky and provocative book, *Teaching As A Subversive Activity*, will have noted the chapter titled "Learning Is Languaging." "Languaging," when you get used to it, is a wonderful and evocative word. It serves as a kind of connecting rod between the separate activities of teaching and learning. I can learn by languaging myself, and teach by languaging someone else. This book is about teaching, but a great deal of what good teaching is, I now believe, is the inculcation of the language of the particular disciplines. William James was aware of this when he said, "Verbal material is, on the whole, the handiest and most useful material in which thinking

can be carried on. Abstract conceptions are far and away the most economical instruments of thought, and abstract conceptions are fixed and incarnated for us in words" (James 1904).

Literacy

It hardly needs saying that language must mean more than vocabulary and syntax. College freshmen can be remarkably adept at storing strings of words in their heads—almost as good as the little tape recorders they sometimes carry about. They can and will learn the definitions of any term you require, or lists of the causes for various phenomena. But if a tape recorder can replay the desired words with perfect fidelity, then clearly the words themselves are no proof of any thought having taken place. Language here must mean considerably more than word storage.

We detect language facility through speech and writing, and the two are clearly related. However, just as articulation does not necessarily follow thought, writing does not flow spontaneously from speech. The capacity for using and understanding the spoken word is clearly a genetic endowment and normal humans raised in any social environment learn to understand and speak the common language. The same cannot be said for reading and writing. Reading and writing might well be called unnatural activities, in that they require so much effort and specific instruction. But reading and writing (literacy) have had an unexpected effect on the way people think, and that fact severely aggravates the problem of relating thought to language.

Writing is a technology that has had a profound effect on the way we use language, and as Ong (1982) and others argue, was probably responsible for changes in the way people think as well. Oral cultures do not use the syllogistic speech patterns common in literate cultures. In fact, oral cultures have little use for abstracting and generalizing. They are comfortable only with the specific and the particular. "We do not speak of things we have not seen," as one of Luria's illiterate subjects put it (Ong 1982). In a contemporary school setting, a person reared in a purely oral culture would be found deficient in critical thinking skills, no matter how well he spoke the language, or how successful he had been in his native society. Language in literate cultures is expected to demonstrate causality, generalization, and logic.

Secondary Orality

If you teach in a typical college you will discover that new college students are not, in fact, particularly literate. Whatever their thinking powers are, they struggle mightily to put those thoughts into words or to extract the intent in someone else's words. Should you try to engage them in discussion on the content of a course, you will find that their speech is likewise labored. In fact, the halting, labored speech characteristic of many classroom recitations contrasts sharply with the facile chatter one hears everywhere else. But there might be no real paradox here. If Ong was correct in his ominous suggestion that contemporary culture's reduced demands for literacy might be precipitating a gradual drift into a kind of "secondary orality," then the "language of the street" may come to resemble that of oral cultures and therefore struggle to cope with the literate demands of the classroom. As Ong and others have noted, literacy introduced an abstract, inductive, and syllogistic way of thinking. In highly literate cultures speech itself came to resemble writing because that was the best way to transmit logical thinking. Speech in oral cultures is quite different. It has been described as "performance-oriented—intended to affect the hearer in some way. It might be argued that the speech of an oral culture serves that culture's needs, but that would be true only because those needs are circumscribed by the limitations of the language.

To cope with the complex problem suggested above, many colleges are pouring resources into remedial language skills courses. *Skill* is a word I'm a bit skittish about, probably because it is so frequently used in educational matters to indicate something generic and adaptable. But I think it can be properly and usefully applied to some aspects of language use. There is, for example, a generic skill that most of us take for granted, but which is a learned skill and can probably be taught. And that is the ability to note with particular care the effect that the ordering and position of some very common and innocuous looking words have on the meaning imbedded in discourse. Some word clusters, even when devoid of any specialized or esoteric vocabulary, require a practiced deciphering skill to extract the meaning put there by the speaker or writer. The expression, "but not if," for example, cannot be misunderstood, glossed over, ignored, or mentally misplaced without grave consequence for meaning. Sentences with conditional modifiers demand not just alertness, but a certain skill in holding one idea in a kind of

mental buffer until those modifiers have done their work on it, at which point it is "released" and becomes part of a complex concept. You can confuse almost anyone by laying on them a sentence with two negative clauses connected by *unless*. (This committee will not meet next week *unless* the subcommittee does not meet.) The point here might seem trivial, but Alan Cromer (1997) in his book, *Connected Knowledge*, notes repeatedly the difficulty college students have with *but, however, even*, and *only*. Healy (1990) also comments at considerable length on the importance of what she calls "function words" or "syntactic markers" such as *if, unless, because of, only after*, and so on. She concludes, somewhat glumly, that they are becoming obsolete among school children.

The ability spontaneously to decode language that contains subtle concepts is an acquired skill even if the subtlety lies in nothing more exotic than connectors and modifiers. The skill to generate such language must also be acquired and demands far greater effort. The language use teachers expect, and far too often take for granted, must in fact be developed through concentration and practice. We come then to the nub of this argument. We all want our students to think, and we would like to believe that our teaching will bring it about. But the thinking we want is usually that *concentration* noted above that happens while students are struggling with the *language*. The only way to force thought, then, is to force the struggle with language.

One element of a teacher's philosophy should be the belief that everything will get better, including thinking, as facility with language improves. Compared with "teaching them to think," this proposed language goal might seem somewhat bland. It does, however, have the merit of being both realistic and testable. Should the arguments proposed here have merit, teaching language development might effect the desired thinking goal, even if the actual mechanism has been enabling students to get at, unlock, and get out, what was in their heads. As to language development being a prosaic and less-than-astral-plane goal, I can only suggest that you hold judgment. As all who try it can attest, the challenge will surpass your expectations.

The Thinking Habit

Some pages back I said that there were two untenable assumptions behind the notion that one can teach students to think. The second of these is the implication that thinking is a generic skill, and once students acquire this

skill they will have it once and for all—like riding a bicycle. If this were true, courses with titles like "critical thinking," would be an absolute and universal requirement for freshmen and the rest of us would, as our old curmudgeon observed, "be relieved of a great burden." Unhappily, critical thinking cannot be acquired in a once and for all manner. Critical thinking courses do exist on many campuses, and such courses have been thoroughly researched. Students in such courses are, at the end, better able to solve the problems encountered in that courses, but do no better or worse in subsequent work for having taken a course specifically designed to teach thinking. This observation has been noted by, among others, Derek Bok (1986), and Erickson and Strommer (1991) who said: "There is little evidence that generic courses or programs are successful in teaching thinking skills that transfer across subject-matter domains."

What can be developed, given good teaching, energy, and some luck, is not so much a *skill* in thinking, but the *habit* of thinking. The distinction is critical for someone about to teach. Acquiring a skill can take considerable initial effort and willingness to take risks. But the skill, if acquired at all, seems to "kick in" at some point—you go from inept to not bad over a short span of time. Anyone who has learned to do the butterfly stroke, or to skate backwards, will remember that magic moment when it felt right. Almost in a blink you seemed to acquire the basic skill, after which it could be honed to any desired level by practice. (I recognize here the difference between having a skill and being skillful at something. Being skillful assumes a certain level of competence beyond the simple ability to do a thing.) Contrast learning to swim with the habit of swimming an hour every day. The ability to do a thing is different from the inclination to do it routinely, out of habit.

Perhaps one aspect of our philosophy about teaching and learning should be the belief that students have the thinking skill, but not the thinking habit. What they need is practice. Language, on the other hand, might very well be a skill yet to be developed, at least at the level required for college work. I have come to believe this and for that reason am no longer exasperated by students who claim they know it but can't say it. A perfectly adequate goal of teaching would be to boost substantially the level of our students' literacy, broadly construed. Literacy promotes verbal thought, which, happily, can become a habit. Many of my thoughts on pedagogy are based on the premise that the thinking habit is supported by, indeed dependent on, considerable facility with language.

I believe my own breakthrough on this point came quite a few years back, during a period when I was convinced that I was teaching my students to think. In a course in biology, I had been generating multiple choice exams carefully designed to test critical thinking about bioenergetics, genetic expression and the like. I spent many hours designing questions that would distinguish various levels of comprehension. The questions, and the options for answering them, were crafted with great care to detect uncertainty and misunderstanding. Student scores produced the predicted bell-shaped curve and I was confident that I was doing fine. But one semester, on a whim I suppose, I added a final question: "On the back of this paper, outline and explain the sequence of events that would lead to death if a mammal were deprived of oxygen." I thought this a harmless diversion, an opportunity for students to use what they knew to tell an interesting little story. The actual outcome was a shock. As I read, paper after paper, dismay gave way to depression. No more than ten percent could write a minimally adequate response.

The request that they generate language that demonstrated biological knowledge seemed to disorient these students. The writing was childish, mostly incoherent, and either showed no evidence of the knowledge used on the first part of the exam, or blatantly contradicted it. The vast majority of them appeared to understand nothing when they were required to generate the language.

What I did not realize at that time, at least not at a functional level, is that multiple choice tests require, besides memory, a basic kind of thinking skill that even freshmen (perhaps *especially* freshmen) have developed to a useful level. The thinking needed might be complex, but it is circumscribed by the parameters of the single question at hand. Any complexities or subtleties of language needed have all been supplied by whoever wrote the question and the options for answering it. My so-called essay question was devastating because it required habits of mind and skill with language that, for most, had never been developed. Applying a known fact to a novel situation that requires that fact is a way of thinking that takes practice. Teachers think that way habitually, but most freshmen do not, at least not in matters of course content. Of equal or greater importance, my question necessitated language that illustrated linkages, logic, and causality. It was that demand in particular that waylaid the majority. It was almost as if the instruction to *write* obliterated what the multiple choice section had suggested that they

knew. Typical answers were, "everything will die without oxygen," or, in a remarkable upending of causality, "animals need oxygen in order to breathe." I then began asking more open ended questions in class and found immediately that when it came to verbalizing consequential relationships, their speaking skills were no better developed than their writing skills.

Realistic Expectations

A teacher can enter the classroom, then, with severely misplaced expectations. Having spent many years in a highly literate environment, we tend to take a similar level of literacy in our students as a given. Many of them, on the other hand, have gotten along reasonably well without getting too entangled with the subtleties of the written word. Their use of language, resembling, as it does somewhat, that of oral cultures, lacks that quality of inventiveness that is a hallmark of literate speech. Rounding up the just-right words and stringing them together syntactically to transmit thought is, in fact, a formidable task. That most of us do it on the run, so to speak, is as much a testament to our facility with the language as to any exceptional skills in critical thinking.

One's philosophy of teaching and one's pedagogy influence one another in a kind of positive feedback loop. Our beliefs about students, our institutions, and even ourselves, can be soured should our pedagogy fail, or provide only frustration. By the same token, pedagogy will be lackluster at best if we start with negative feelings or beliefs about students and the whole business of teaching. On a happier note, an upbeat and well-considered philosophy and a successful pedagogy likewise reinforce one another in something of an upward spiral.

My intent in these reflections is to investigate ways to nudge both philosophy and pedagogy in at least small increments and in a positive direction. Inspiring and instructing young people to verbalize and articulate thought will likewise initiate a circle of positive feedback between thinking and language and send students off on their own spiral of lifelong learning.