At Last

Words in Action: Rethinking Workplace Literacy

Mike Rose
University of California, Los Angeles

We live in a time of the celebration of high technology and symbolic analysis, even predictions of the end of common work, yet physical work, work of body and hand, surrounds us, makes everyday life possible. For about six years now, I have been involved in a research project exploring the thought it takes to do physical work, the cognitive processes involved in various blue collar and service occupations like waitressing, hairstyling, plumbing, welding, industrial assembly, and the like. The study has led me to consider the way we categorize occupations, define intelligence, and think about learning and schooling. Of particular interest to readers of *RTE* will be my findings in the realm of literacy and numeracy. A number of people have already done important research on job-related literacy. What follows is in line with their research, though I would like to use it to help us reconsider some of the traditional ways we define and discuss written language, numbers, and graphics.

Any discussion of literacy in the workplace would need to include numeracy, for most work settings are thick with numbers. Numbers on tools and gauges, as measurements, as indicators of pressure or concentration or temperature, as guides to sequence, on ingredient labels, on lists and spreadsheets, as markers of quantity and price. Certain jobs require workers to perform calculations, to check and verify, and, at times, to collect and interpret data. A fair amount of basic math can be involved, and some workers develop a good, if informal, sense of number and pattern. As well, there is material mathematics, mathematical functions embodied in materials and actions. The cognitive demands of such math—the number of interrelated variables, the planning, the estimations—can be considerable, particularly when one is still developing competence. Another important thing to note is that a simple mathematical act can extend quickly beyond itself. Measuring, for example, can involve more than recording the dimensions of an object. I was watching a cabinetmaker measure a long strip of wood. He read a number off the tape out loud, looked back over his shoulder to the kitchen wall, turned back

to his task and took another measurement, then paused for a moment in thought. He was trying to figure out a problem with the molding, and the measurement became a key element in his deliberation about structure and appearance. "Lower-order mathematics," as the authors of one recent report put it, becomes "a rich source of higher-order thinking."

The workplace is also rich in graphics. Directions, diagrams, plans, and reference books contain numerous graphic illustrations; some are fairly representational of the object in question, others, like blueprints, are more specialized in depiction and purpose, requiring training to understand them. Often, a whole array of esoteric symbols is involved, "visual jargon" for switches and receptacles, or pipe fittings, or types of welds. Workers often generate illustrations themselves, quickly, in the unfolding events of the job, illustrations meant to aid communication and forward activity. How frequently I saw someone suddenly grab a pencil—shifting the medium of representation from speech and gesture to the graphical—to sketch something, while talking, on a scrap of paper or on a piece of material itself. (Many a panel of plywood nailed into place has such a sketch drawn on its reverse side.) Those sketches can illustrate dimension, function, relation, sequence, or more, and often contain words, numbers, and specialized notations intermixed with lines, angles, and curves. This strategic blending of symbols displays a flexible disciplinary and communicative competence—the worker has to recognize the need to switch media—and signals, as surely as does a field's vocabulary, membership in a skilled occupational community.

Numbers and graphics interweave with written language, creating a complex symbolic field. Though many kinds of physical work have not required high levels of literacy, more reading than is generally thought occurs in the average workplace: from manuals and catalogues, to work orders and invoices, to lists, labels, and forms. These texts are coupled with other activities, so, for example, people read to specify a production quota or to be guided in the use of an instrument or a product. And some manufacturing and service jobs involve a good deal of "paperwork" to document and trace, integrated throughout one's work routines. The use of such texts, once mastered, becomes familiar and repetitive, not requiring much interpretation, though they may well be incorporated into an interpretive act, part of assessing a situation or solving a problem. Other kinds of texts—codes and collective bargaining agreements, for example—define work, contribute to the standardization of parts and processes and regulate social and economic relations. Such documents form a legal and organizational surround. They are typically not read in the immediate activity of work—the information in them is usually conveyed orally by peers and supervisors—but they can quickly move to the foreground of activity during labor negotiations, organizational restructuring, or the reassessment of a standard procedure.

Writing, of a limited sort, is also distributed throughout the workplace. It is used to label, to list, to record activity; it can be structured by a form or be sketchy, part of talking or thinking through a problem. It can initiate action, as in a restaurant order or a report of machine malfunction, or it can be private, as in the list hastily written as a memory aid. If the worker is in training—in the shop or in a classroom—he or she may take notes from demonstration or lecture, annotate written texts, and linguistically simplify or graphically render instructions in manuals or training materials. And in some cases, the worker—particularly in new, "restructured" industries—may need to write a lot, to record, evaluate, and make recommendations about production processes.

Traditional treatments of literacy tend to classify most of the above uses of reading and writing as basic, rudimentary: they are instrumental, repetitive, often involve limited amounts of text, infrequently call for interpretation or analysis of the text itself. There is a descriptive truth to such judgments: the uses of literacy in the common workplace do tend toward the abbreviated and routine. But I think there is also an implicit comparison here that sells workplace literacy short, comparison with literary expression or with the uses of written language in the professions or the academy. While reading and writing in many professions and, yes, even in the academy, are more routine and scripted than the comparison implies, it is surely true that, say, writing a legal brief requires significantly more literacy skill than filling out a form when a machine breaks down. Still, I've come to think we underestimate the significance of common workplace literacy.

First, our traditional categories can blinker our understanding: analytic moments can be embedded in routine, and seemingly basic reading and writing can be cognitively richer than they seem. The writing of just a single word, perhaps along with other notations, can represent much more than the word itself denotes. To the carpenter planning a roof or the paint shop foreman troubleshooting on the auto assembly line, the scribbled words "eave" or "primer" can carry with them an understanding of a structure or a process, a history of experience, and a series of options for action. Also, I'm struck by the degree to which workers shift among different symbol systems and integrate them with each other and with other cognitive and interpersonal events to make things happen. Because this occurs so frequently and in the flow of other activity—its very everydayness—I think we can miss the remarkable thing about it: the coordinated use of word, number, and line to initiate and direct action. One more thing to note. Physical work may not require high levels of literacy—and some workplaces employ many people who are marginally literate or not literate in English—but print is spread throughout the environment, and those who have trouble decoding or producing it sometimes develop a range of compensatory cognitive, linguistic, and social strategies to enable them to do their work. They engage others, read non-linguis-

tic cues, use sight, sound, and touch to aid interpretation. Workplaces are literate environments, and people do their best to figure out how to live in them.

We know a fair amount about the cognitive and linguistic processes at play in the foregoing, but at times our analyses have been framed in the negative: what kinds of literacy and numeracy are not present, what limitations do workers reveal at the task? I surely am not calling for a romanticized portraiture here, but it would be fascinating, I think, to shift our line of sight a bit and ask what all these forms of symbolic behavior are on their own terms, in context, how they interact, what it takes to do them well, what they make happen in the world, how they might connect to other literate behaviors, in and outside of the workplace. Such understanding would lead to fuller appreciation of a whole, rich domain of symbolic activity, and would better poise us to create effective training and educational programs. So much vocational education and workplace literacy instruction is developed from a perspective of student or employee deficiency, tending toward the simplest and strictly functional of tasks. While many people in these programs have, in fact, had poor educations and do need instructional assistance, that assistance could come from a richer conceptual base, opening up curricular and pedagogical possibilities. We might, for example, rethink age-old—and largely unchanged—courses like Business Math and Business English, or, more importantly, reimagine the separation of the vocational and the academic, building from the robust cognitive processes both express. Furthermore, we would be in a better position to create fresh connection to other modes of numeracy and literacy—across institutional and class divides—to see what is different but, as well, to appreciate what might be shared as people engage their minds in the business of making a living.

ENDNOTE

An earlier version of this essay was published in the *Newsletter* of the National Conference on Research in Language and Literacy (Fall 2002, 29[2], pp. 4 and 6-7.