Not Your Father's Shop Class

Bridging the Academic-Vocational Divide

By Mike Rose

The frame of a very small house sits in the middle of the large electronics workshop. The frame is bare except for wires running across and through the beams, wires and receptacles, some wall switches, various light fixtures, and a power panel, door open. Students test their skills on this simulated residence, sections of the classroom's tiled floor taped off and marked *washer*, *garbage disposal*, *TV*. On this day, Tyler and Mariana are hooking up the lights and running the wires to the power panel. They are just about done, Mariana giving the circuit breakers in the panel one last look.

There is a group of younger students present, new boys and girls just entering the program. I stand among them. We are all back a little ways from the house. Tyler and Mariana say they're ready, so the teacher walks over to the classroom's central power source and flips a switch. It works! The whole house lights up, ceiling lights, wall lights, floods. "Wow," exclaims a boy by me, under his breath. "Man," he says, "that's crazy!"

Young people who find little of interest in the traditional curriculum can be intrigued by the world of work. I would find out that this fellow was such a student; he had already come to believe that school wasn't for him. Though the reasons young people leave school can involve much more than curriculum, this program might catch him. This might help keep him in school and aid him in fashioning an occupation for himself, an opening through the intersection of technology and desire. The huge question is what would await him? A restricted pathway that defines him and the electrician's trade in narrow intellectual, as well as economic, terms? Or a curriculum that assumes curiosity and the ability to learn, and that, while situated in the illuminated house frame, seeks connection to writing, to mathematics, to the economics of the trade, to the historical and cultural meaning of shelter and light across time? Some version of this basic question is currently being asked both within and outside the circles of career and technical education (CTE).

Mike Rose is a research professor in the Graduate School of Education and Information Studies at the University of California, Los Angeles. He has written extensively on literacy, cognition, and the purpose of education, and is the author of numerous books and articles, including The Mind at Work: Valuing the Intelligence of the American Worker, *© 2004 by Mike Rose and newly released in a 10th anniversary edition, from which this article is adapted with permission of Viking Penguin, a division of Penguin Group (USA) LLC.*

Though CTE is currently the focus of a good deal of public and policy discussion, debates about vocational education—the earlier incarnation of CTE—have tended to take place at the margins of education policy. But as I was visiting schools and doing research for *The Mind at Work: Valuing the Intelligence of the American Worker*, which was first published in 2004, I came to believe that a comprehensive discussion of CTE, and with it, the very separation of the vocational and the academic curriculum, could become the site of a broadly significant conversation, one that would not only affect CTE but would range far beyond it.

Perceptions of Physical Work

When I was in high school in the 1960s, the curriculum was split into three tracks: an academic or college-preparatory track, a general education track, and a vocational track. Upon entrance, students were placed in one of them based on their previous academic records or a measure of ability, typically an IQ score. The curriculum directed us toward a four-year college or university, possibly a community college, or toward service or low-level managerial careers, or into blue-collar work. The curriculum also contributed powerfully to our school's social order. I was slotted into one of the general/vocational tracks. The college-bound were in student government, edited the newspaper and the annual, and at year's end had a thick list of activities under their class photographs. I swear, looking back on it all, the college-prep crowd walked around campus with an air of promise. Their course of study was the place of smarts and big ideas while the "voc-ed" crowd inhabited the domain of the manual, the concrete, the gritty.

From the beginning of curriculum tracking, some educators and social critics were concerned that this way of educationally stratifying young people was undemocratic. John Dewey called it "social predestination." To make matters worse, by the mid-20th century, sociological studies were documenting the bias at work in the way students got placed in these tracks. For example, working-class and racial and ethnic minority students with records of achievement comparable to their advantaged peers' were more frequently being placed in the general education or vocational course of study.

Finally, vocational education was, on the whole, not providing a good education. This concern is summed up by the authors of a 1993 report from the National Center for Research in Vocational Education: "Vocational teachers emphasized job-specific skills to the almost complete exclusion of theoretical content. One result was that the intellectual development of vocational students tended to be limited at a relatively early age."[1] This is a remarkable statement. We charge the school with cognitive development, yet in the very curriculum that places work at its core, we find a restriction of intellectual growth.

To be sure, there have been many voc-ed teachers who have taught well and have made a difference in young people's lives. My stepfather, a very handy guy, locates the origins of his skill some 60 years ago with a Mr. Foster, his high school woodshop teacher, and an owner of a successful hair salon I know got her start in a high school program.

Some vocational teachers have concerned themselves with the full development of the students in their charge, have provided good counsel, and have structured students' experiences to foster both trade skill and a problem-solving cast of mind. Still, the report

from the National Center for Research in Vocational Education captures the fundamental paradox of vocational education as it has been practiced in the United States: the diminishment of the intellectual dimension of its subject matter. This state of affairs provides an extended illustration of the bias against manual and service work that runs deep and wide in our social and institutional life.

For a very long time in the West, there has been a tendency among intellectual elites to distinguish between physical work and technical skill—labor, the mechanical arts, crafts and trades—and deliberative and philosophical activity, which emerges from leisure, or at least from a degree of distance from the world of work and commerce. This distinction is related to another: between pursuits that are ends in themselves and pursuits that are means to other ends, "pure" activity and knowledge versus the instrumental, applied, and practical, which are often thought to possess less merit.

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These distinctions find early articulation in Classical Greece, where entire social and occupational groups were narrowly and harshly defined. In *The Republic*, Plato mocks the craftsman who would pursue philosophy, for his soul is "warped and maimed" by his work; such men are "incapable of culture."[2] And Aristotle in *Politics* notes that "there is no element of virtue in any of the occupations in which the multitude of artisans and market-people and the wage-earning class take part."[3] To be sure, the craftsperson—from cobbler to shipwright to potter—was essential to Greek civilization, and his skill was praised, but, wrote Plutarch, "It does not necessarily follow that if a work is delightful because of its gracefulness, the man who made it is worthy of our serious regard."[4] Work of body and hand, then, has limiting, even harmful, consequences for civic status and engagement, for the ability to deliberate and interpret, for virtue.

Though there certainly are dissenting voices in Western intellectual history, from Saint Augustine to William Morris, it is striking how pervasive this perspective on human behavior is. Closer to our time, there are many reasons to explain why physical work is so perceived, reasons stemming from social class, the organization of work, and the dynamics of occupational status. But an element of our perception is related to these Classical distinctions, absorbed into new historical contexts. As labor journalist John P. Hoerr observes: "Since the early days of industrialization, a peculiar notion has gained ascendancy in the United States: that wage workers and their representatives lacked the competence to handle complex issues and problems that required abstract knowledge and analytical ability."[5]

The distinctions between pure and applied, theoretical and practical, are deeply familiar to me, resonant from undergraduate courses in philosophy and literature, from graduate study in education and psychology, and from years of professional life in a research university, where a range of institutional decisions and certifications—from course credit to disciplinary definition—are made on the pivot of the pure-applied differential. Our egalitarian ethos notwithstanding, a lot of our schooling reinforces this way of thinking about human activity. This sense of deficiency affects, and distorts, everything from education and job training to the way work is organized—and is intimately tied to the institutionalization and development of curriculum tracking and to the place of vocational education in that tracking system.

Renewed Interest in CTE

A remarkable amount of effort by educators, policymakers, advocacy groups, and parents has resulted over the last few decades in a dismantling of formal tracking. Although patterns of inequality still exist in the courses students take—vocational courses are overpopulated by poor kids—we have in our time witnessed the emergence of a belief that college is possible for everyone. Also, there has been a significant effort to reform vocational education, to beef up its academic content, and to provide better pathways both to postsecondary education and to employment. Some high schools, for example, have developed "career academies," which allow students to be introduced to an occupation (from the arts to healthcare) while taking academic courses that draw on occupational topics and materials.

School politics and reforms are a complex affair, however; while career academies and other experiments were unfolding, other elements of career and technical education—the traditional shop classes particularly—were being cut. CTE has taken a huge hit over the past several decades, its suitability for our current economy and, no small matter, its expense questioned—it costs a lot to maintain state-of-the-art labs and workshops. Where CTE programs did survive, they often were reoriented toward healthcare or technology, or, more recently, given a "green" focus.

But recent events have sparked renewed interest in CTE. Some economists and policymakers are questioning the viability of the push for college for all—the expense and low completion rates—and pointing to the kinds of midlevel technical jobs that might require a postsecondary occupational credential but not a two- or four-year degree.* The Great Recession has given some weight to this argument. Also, CTE now involves more technical and design courses, seen as academically substantial and viable in a 21st-century economy.

One model frequently in the news is a partnership whereby an industry teams up with a local community college to train students for high-demand jobs in that industry—specialized computer-assisted manufacturing, for example. These programs are understandably popular, for they are short-term and provide a pathway to employment, a godsend in communities wracked by the recession. A concern is whether the training is narrow or broad in scope, providing knowledge and skill for people to move into other kinds of work if the specific job they trained for becomes obsolete.

This concern about a more comprehensive education is being widely discussed in CTE circles today: What does it mean to be educated in a rapidly changing work environment? Are we providing adequate knowledge and skill for students to continue learning, to have a future orientation to the world of work? The best CTE (or older voc-ed) programs I've seen help students become more literate and numerate and teach processes and techniques in ways that develop broader habits of mind.

A community college automotive technology program I visited recently, which had students learning about diesel, hybrid, and compressed natural gas vehicles, emphasized problem solving, principles and concepts, and understanding machines as systems. "The textbook gives you the mechanisms," a student explains, "their function and their purpose. But our teacher, he gets us to see that when *x* fails, then *y* fails. Man, that's a whole different story." Another student, studying to be a bus mechanic, characterizes his program's approach toward repair: "You're like a doctor. You use all your senses, and you also ask the driver, what'd you hear? Feel? Smell? And you put that together."

It comes as no surprise, given the place of high technology in the culture at large, that there is real excitement in CTE about the educational possibilities provided by the high-tech nexus of computers, engineering, and design. Some of the occupations related to this nexus are still developing, but the hope is that students will be equipped for work in, let's say, digital media or customized design. Furthermore, more traditional jobs in a number of fields—healthcare is a big one—will need people skilled in computer and information technologies. I recently visited the lab in a design program, and there among various computers and computer-design equipment, robotics kits, laser cutters, and a 3-D printer were students working on projects, talking about design principles, aesthetics, and marketing. This isn't your father's shop class.

There is one more development that is relevant here, separate from but not unrelated to CTE. Over the last 10 years or so, increas-

ing numbers of Americans have discovered (or rediscovered) the pleasures of working with our hands—or at least of using products that are handmade, manufactured on a small scale, or locally produced. There is a makers movement and *Make* magazine, and a related do-it-yourself movement. In education, there is growing interest in making and "tinkering" to foster, in one organization's words, "imagination, play, creativity, and learning."[6]

As opposed to some anti-technology expressions of this hands-on spirit in the modern West, our era's movement embraces technology—computers and digital media are as much a part of the makers movement as woodworking and quilting. The same holds for education, which wants to draw on young people's involvement in computer technology and social media. A revitalized CTE is both influencing and incorporating making and tinkering.

Fortunately, there are programs and schools that have this kind of engagement as their central mission. Big Picture Learning, a network of 50-plus schools across the country, is one such effort; High Tech High, a network of 12 elementary, middle, and high schools in Southern California, is another. Both of these organizations, in different ways, have created courses of study that blend occupational and academic learning from the ground up, are heavily driven by student projects rather than a fixed curriculum, and recruit students from all income levels, with a focus on the less advantaged.

I have sat in on a meeting of Big Picture Learning principals, and in addition to being impressed with their creativity and zeal, I was also struck by just how hard their work is, trying to push against so many established ways of doing things and of thinking about ability and learning—not to mention the students who keep them awake at night with worry. But the payoffs are powerful: strong graduation rates and rates of postsecondary study. And there is the intense fulfillment of watching their students develop into competent, thoughtful people. The founder of High Tech High tells me this story: A visitor asks a ninth-grader about her homework, and she says she doesn't have any. Surprised, the visitor then asks what she does at night, and she replies that she works on her projects.

Teachers pray for that kind of involvement.

Rethinking the Academic-Vocational Divide

Earlier, I suggested that a renewed interest in CTE could spark conversation about a broad range of fundamental topics. There is the issue of intelligence itself: its definition, the limits of our standard measures of it, and our lack of appreciation of its many manifestations in the world of work.[†]

There is also the issue of differences in aptitude and interest, in the things we like to do with our minds. Though our schools have put some effort into dealing with this kind of heterogeneity, they end up responding to difference in pretty simplistic ways. We develop limited categories for courses and for placement, which are administratively efficient but cognitively reductive—and we quickly rank order them. Given, for example, the distinctions we make between the academic and the vocational, difference can devolve to deficiency. Sadly, some policy and curricular deliberations about career and technical education have embedded in

them assumptions of cognitive limitation—and these assumptions shrink our curricular imagination.

To revitalize that imagination, we need to rethink our notions about mind and work, and we need to reassess long-standing and seemingly self-evident distinctions among levels and kinds of knowledge. Certainly, distinctions can be made; expressions of mind are wide and varied. But as I noted, there is a tendency, in the school as in the culture at large, to view knowledge and skill associated with many kinds of work as rudimentary. As education scholar Theodore Lewis puts it, vocational knowledge is not perceived as valid school knowledge.[7] A related issue is that the traditional, and weighty, separation between pure and applied

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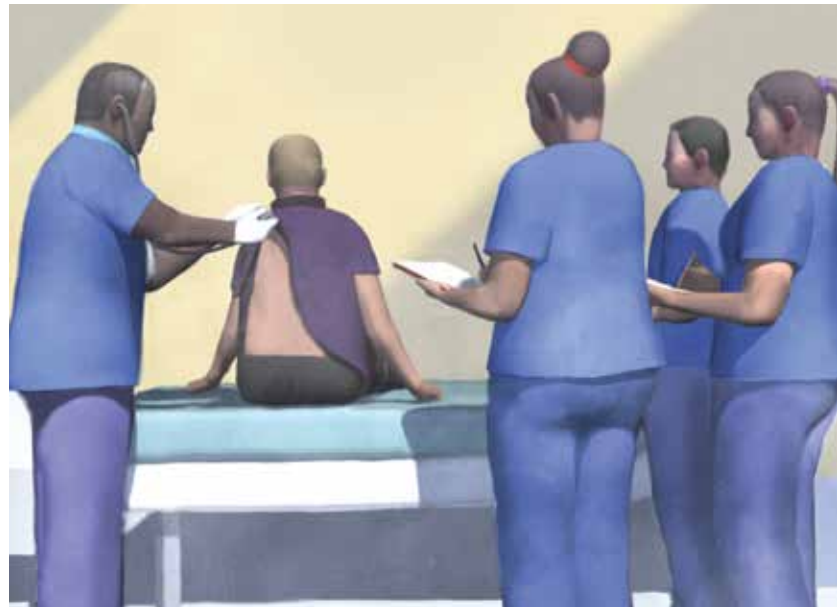
knowledge, between the theoretical and the practical, tends to neatly segment a more complex reality. The more time I spend amid different intellectual disciplines and amid different spheres of work, the less sure I find these distinctions to be.

And then there is the issue, much in public talk these days, of the purpose of work, which gives rise to a cluster of further issues: meaning and identity, tradition and ethics, values, human connection. There are so many moments in the practice of challenging work where values, ethical questions, connections to self and tradition emerge naturally, and with consequence, ripe for thoughtful consideration. Surrounding such issues, influencing them at every level of working life, are the profound effects of social location, economics, and politics.

†For more about intelligence, see "Schooling Makes You Smarter: What Teachers Need to Know about IQ" in the Spring 2013 issue of *American Educator*, available at www.aft.org/pdfs/americaneducator/spring2013/Nisbett.pdf.

The early architects of voc-ed wiped these concerns from the curriculum, and vocational education has been pretty anemic on such topics since. This is unfortunate, for young people are at the stage where they're realizing how important work will be in their lives, how it will frame who they are and what they can do in the world. They are desperate to be somebody, to possess agency and competence, to have a grasp on the forces that affect them.

All of the above, it seems to me, plays in and out of the basic question, the Jeffersonian question, about the purpose of schooling in a democracy. Throughout the early history of vocational education, both advocates and opponents relied on democratic rhetoric to make their cases: It is democratic to provide all students with a similar course of study—at that time, the academic curriculum. Or, no, it is democratic to respond to the individual needs of quite different students. As I've considered it, I don't think this is the most fruitful way to frame the debate. The vocational-academic divide leads us to consider the Jeffersonian question in more nuanced ways.

For some critics, schooling should be freed of economic motive and vocational content. Though unrealistic, and, to a degree, elitist—how can we tell poor students not to view school as a gateway to socioeconomic advancement?—there is merit in this position when one considers how crassly practical some have tried to make schooling. (One influential early-20th-century superintendent wanted to evaluate subjects in the curriculum based on each subject's "unit cost" per pupil recitation.[8]) But economic motives have long driven mass education in the United States. In addition to his claims of the intellectual, civic, and moral benefit of the common school, Horace Mann devoted an entire report to the economic benefit, as well.[9] One could certainly argue that the strictly academic curriculum has long served as a vocational course of study for the middle and upper classes. It seems that the key issue here is how narrowly or richly "vocation" is conceived and whether the child is defined solely as an economic being.

I think there are two basic and interrelated questions that will shape the continued evolution of career and technical educa-

tion. First, how do we rethink in a fundamental way the academic-vocational divide? There has been a lot done in this regard, from career academies to the emphasis in some programs of the intellectual content of work. And there are new approaches that affect CTE. Linked Learning, for example, is a program that advocates that all children get a uniform education in mathematics, English, and the arts and sciences, and only then branch off to a college- or career-oriented course of study. For Linked Learning or any other revision of CTE to be truly effective, however, our culturally embedded beliefs about mind, work, and social class will need to be surfaced and examined—for they will maintain the academic-vocational divide, even if a host of structural changes are made.

The second question moves us from the structural level of curriculum to the level of the individual student. Can we view the young people who pursue an occupational education as serious thinkers and see their engagement in work as an opportunity for them to explore aesthetics and ethics, history and politics, even—as will sometimes be the case—when their basic academic skills are weak? To answer this question positively might well mean creating the conditions for them to change the way they see themselves, for many have bought the definition laid on them by their place in the educational and social order. I think of a principal I once interviewed who described how the students in her school "looked at us in disbelief when we told them they were intellectuals." Such talk can't be superficial happy talk, but talk warranted by legitimate intellectual engagement with ideas and the world of work.

The early architects of vocational education built into its implementation bureaucratic and budgetary safeguards to protect it from the more powerful academic side of things, but in doing so cemented in the deep biases of the culture about physical versus mental activity. Furthermore, there were no bridging mechanisms built in between the vocational and academic realms to enable creative interaction, to foster cross-disciplinary discussion that could expand and enlighten, for example, the use of tools or the development of literacy. I think here of something I saw at a Habitat for Humanity site that crystallized the issue for me. I was watching a skillful high school carpentry teacher working with two of his students.

They have just placed an assembled window into its space in the frame. They are looking it over, eyeballing the edges, checking it with a spirit level. They're following procedure, and everything seems OK. They're ready to fasten the window in place. Their teacher takes a few easy steps toward them and asks them to come here a moment, to walk with him around to the other side of the window, inside the house. "Take a look from here," he says. The boys inspect the edge of the frame—and see the problem. The plywood that forms the frame on this side of the window assembly has been cut unevenly, and at several places there is not enough wood to receive the nails that the boys were about to drive from the other side. They are visibly struck by this, say they wouldn't have thought of this. But, geez, now that they see it....

In many ways, this is a small thing. A further routine step in the procedure of window installation—though the teacher sets it up nicely. But it also could be thought of as a metaphor for the vocational-academic divide. Though a routine move, and though certainly functional—you've got to see if your window assembly will be secure—this strategic shifting of physical location rep-

resented for me the shifting in perspective that is such a key element of intellectual development. It contributes to the solving of problems in many domains, to a more complex understanding of human behavior, to adopting point of view in literature and the arts. A lot could emerge from this moment. The day-to-day at the Habitat job site was full of such episodes, and their cross-disciplinary potential was, for the most part, lost to the English teacher or the psychology teacher, sealed off by the physical and conceptual barriers in the curriculum, even in a posttracking world.

As the people who are doing it will tell you, it is hard work to teach at the intersection of the academic and the vocational divide. It involves the delicate negotiation of turf and subject-area status—the touchy personnel dimension of the academic-vocational split. Then there is the bureaucratic dimension: the finessing of work rules, curriculum frameworks, and district guidelines. And there is the crossing of disciplinary boundaries and culturally sanctioned domains of knowledge, something that the typical undergraduate curriculum and teacher education program does not prepare

Teachers working at the breach between the academic and the vocational challenge assumptions about hand and brain and make the schoolhouse more democratic.

one to do. English teachers are not taught how to talk to historians or biologists, let alone to nurses and engineers. Thus, even the most willing of teachers is hampered by traditional vocabularies and definitions and status dynamics that make it so hard, for example, to articulate—and then to teach—the cognitive and aesthetic dimensions of manual skill.

It *is* hard work. It means developing classroom activities that authentically represent the knowledge and intellectual demands of the workplace and, conversely, bringing academic content to life through occupational tasks and simulations. It means that the house or the garment or the computer could be the core of a rich, integrated curriculum: one that includes social and technical history, science and economics, and hands-on assembly and repair. It means learning about new subject areas and making unfamiliar connections: the historian investigating the health care or travel industry, or the machinist engaging the humanities. It means fostering not only basic mathematical skill, but also an appreciation of mathematics, a mathematical sensibility, through the particulars of the design shop, the restaurant, the hospital lab. It means, as well, seeking out the many literate pos-

sibilities running through young people's lives—on the street, in church, in romance—and connecting them to the language of the stage, the poem, the Bill of Rights, but the contract, too, and the list of assembly procedures.

And, of course, such teaching might well mean providing instruction in "basic skills," but in a manner that puts the skill in context, considers its purpose, and pushes toward meaning beyond rote performance.

The teachers who do this work are trying to fashion a quality education for a larger-than-usual number of American youngsters. From what I've seen, they increase the number of students who graduate thoughtful and articulate, able to talk about what they're learning and of themselves as learners, able to act in and on the world. "It's the most powerful thing," says one teacher, "that I've ever done in education." While these educational experiments can involve all children, I am impressed by the special meaning they have for students who are not on the educational fast track, the great mass of young humanity. This kind of teaching represents a significant change in established beliefs about the capacity of such students.

It is important to note that in the early days of debate over vocational education, there were compelling voices articulating this kind of belief in the capacity of the common person and connecting education to an egalitarian vision of human and cultural development. There were John Dewey and Jane Addams, but others as well, academics and state-level committee members. But that view of mass education was erased from final policy. It needs to be reclaimed, for it is so pertinent now.

Without such bedrock beliefs and commitments, we will not continue to develop career and technical education or bridge the academic-vocational divide, for the beliefs about intelligence and knowledge that underlie a curriculum are as important as the content of the curriculum itself. Thus, those teachers who do work diligently at the breach between the academic and the vocational are engaged in a kind of applied political philosophy. They challenge the culture's assumptions about hand and brain, and the rigid system of educational theory and method that emerged from them, making the schoolhouse more truly democratic by honoring the fundamental intelligence of a broad range of human activity. ☐

Endnotes

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