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Rethinking Remedial Education and the Academic-Vocational Divide

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In the United States and in other countries as well there are a number of government and philanthropic initiatives to help more people, particularly those from low-income backgrounds, enter and succeed in postsecondary education. These initiatives typically involve remedial education (because a significant number of students are academically underprepared) and vocational or occupational education (called Career and Technical Education in the United States) because many students elect an occupational pathway. On the remedial front, policy makers are calling for reform of remedial education, for it has proven to present various barriers to degree completion. On the CTE front, policy makers want more academic work integrated into career courses believed to better prepare students for the demands of the new economy. But both remediation and CTE emerge from and carry with them assumptions about knowledge and learning that limit their effectiveness, and these assumptions are reinforced by institutional structures and status dynamics and by the forces of social class. This article (based on a talk given at the American Educational Research Association) examines these assumptions with the goal of moving beyond them. It also offers some reflection on the research methodology best suited to explore such complex social topics as remediation and occupational education.

What you see depends on where you sit, and for how long. You enter the classroom from the rear, wanting to be discrete on your first visit, and slip into the desk closest to the door. A few students notice you, but most are walking around or leaning over to the person next to them talking. Except for one woman, the class is all men, 20s and 30s, a few White guys, the rest Black and Latino. Hoodies, baggy pants, loud profanity. The teacher is in front at a cloudy overhead projector. Three men are around him—each seems bigger than the next—and they are arguing.

The room is old and dingy, no windows, bare except for the irregular rows of desks, the table with the projector, a cart holding pipes and metal bars, and in the corner a worn flag from the American Welding Society. You're trying to take it all in when a sullen guy in an oversized T-shirt, a bandanna around his head, walks over to you and asks, "What are you doin' here?"

This is an article about perception and ability, about the way beliefs about cognition blend with social characteristics—class, race, gender—to create both instructional responses and

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institutional structures that limit human development for people already behind the economic eight ball.

The classroom is attached to a large welding shop in a community college vocational program. Two days a week, the welding instructor teaches basic mathematics to his novice welders because some of them checked out of school long ago and never learned, or learned poorly, how to divide decimal fractions and calculate volume. And some knew it but have been away from it in the military or in a job that folded. Most people who make policy that affects students like these—and a fair number whose research involves them—haven't spent time in such classrooms. And, with few exceptions, those who do aren't there for long.

But if you stay . . . and come back . . . and come back again, you'll notice that on some days the baggy jeans and oversized tees are traded off for work shirts with company logos on the back. As you move around the room, you'll hear that amid the f-bombs, students are explaining to each other how to solve a problem or challenging someone else's explanation. The men walking over to other men's desks are typically bringing their open notebooks with them. The big to-do that can flair up around the projector—lots of pointing and trash talk—usually involves a disagreement among students that they take right up to the instructor, the shadows of their fingers flitting across the diagrams on the overhead screen.

And that guy who wanted to know what you're doing here? Well, it's a legitimate question, isn't it? And everything depends on how you answer it. When it was posed to me, I said I was here to study programs like this one because we need to know more about them to convince our politicians that we need more of them. The man's features softened, and we moved out into the hallway. "We need programs like this," he said. "People like us." "It's the teacher that really makes a difference," he continued. "He treats us like we're people."

I later found out more about this man—let's call him Ray.[1] Ray has been in the two-year program for a year, is doing well, and, in fact, just got a job. The boss sent the instructor an e-mail praising Ray, adding that he'd hire anyone else that good. The instructor then told me Ray's story. During his first few weeks in the program, he tried to cheat on a test of welding terms by erasing the name on a paper being handed toward the front and writing his name quickly across the top. This was so pathetic a move that several students called him on it— and, besides, the instructor could clearly see the traces of Ray's handiwork. Ready to throw Ray out of the program, the instructor called him into his office the next day, angry at both the stupidity and insult of Ray's stunt. Ray was mortified and begged to be given another chance. Ambivalent, uncertain, the instructor relented. "You just don't know," he said to me. "You have to be open in a program like this, give guys a chance to leave the streets behind." For the instructor, the program was a buffer zone. Some people will change. Some won't. It's hard to know in advance. But Ray seems to have found his way.

For some time now, I have been studying cognition, language, and learning in low-status places—working-class schools, blue-collar job sites, remedial classrooms—places not privileged by society or, frequently, by the institutions in which they are located. Places like the basic math course and the welding program that houses it. I'm sure my interest in such places begins with my own history. My uncles were employed in the East Coast smokestack industries—railroad, automotive—and my mother was a waitress all her working life. That work kept us afloat, and

[1] All names are pseudonyms.

seemed powerful, and I loved watching it. As for school, I was a somnambulant student—except when the nuns wacked me—and once in high school, I spent two years going nowhere along a nonacademic track. A senior English teacher turned my life around—that is a story for another time—and after struggling through a probationary first year of college, I began to find my way. So, all in all, I know the remedial side of the street pretty well.

I'm going to fast-forward through my undergraduate English major (that English teacher had turned me on to literature, and, besides, *he* was an English major) and zoom across a subsequent year of a doctoral program in English—which turned out to be too removed from the work of the world for me. Looking to ground myself and make a living, I found the Teacher Corps, a War on Poverty program that placed prospective teachers in low-income schools. That was my introduction to teaching and education, and after Teacher Corps I would go on to work for eight more years in a community college, in adult school, and in a range of programs for special populations: traffic cops and parole aids to returning Vietnam veterans.

Let me tell you a little about the Veterans Program, for I see now how much it shaped my subsequent teaching and development of curriculum—and eventually research on remediation. The twelve-week program was developed by UCLA Extension and funded through the G.I. Bill—and it was housed in an old building in downtown Los Angeles, far away from UCLA itself. The purpose of the program was to prepare the vets for some level of postsecondary education. They took math, reading, speech, and writing courses, and an introductory course in psychology that gave them transfer credit. This was my first job out of Teacher Corps where I had taught language arts to children; now I was facing adults my age or older, and I wasn't sure what to do. But God looks out for drunks and fools, and I began to see that if this really was a *preparatory* program, then I could simulate for the vets the kind of intellectual tasks and writing assignments they would face in college. So, for example, I knew from my experience that they would have to systematically compare events or processes or texts. So I started them off with a few lines on human solidarity from John Donne and from the Caribbean poet and statesman Aimé Césaire, and over a few weeks we worked our way up to an astronomy textbook account of the Big Bang and an Australian aboriginal myth about the origins of the cosmos. We would talk about these passages, look up words, puzzle together over what they meant, and then list as precisely as we could similarities and differences in the content, in language, and who we imagined the audience for each to be. Then as best as they could, the veterans wrote out what they had discovered, sometimes in class as I went desk to desk, sometimes with the tutors the program hired—and when they were available, I'd bring one of the tutors into my classroom. Then the vets would revise their papers at home and come back for another round.[2]

After all this work in special programs, I would go on to run the Educational Opportunity Program Tutorial Center at UCLA, a summer bridge program, and the Freshman Composition Program. Again, I'll fast-forward here and only say that I and my colleagues in the Tutorial Center further developed the curriculum I started in the Veterans Program and as well developed another model for remediation in which we linked writing courses to introductory courses in political science, history, and psychology. This approach is in the air again today, used in college "learning communities" and in "contextualized learning"—for example, the way that welding teacher in the opening vignette teaches basic math.

[2]Many years later my UCLA Writing Programs colleague Malcolm Kiniry and I would develop this curriculum into a textbook for freshman composition (Rose & Kiniry, 1998).

In hindsight I realize how important it was that my first encounter with college remediation happened in the Veterans Program. It was both geographically and symbolically a far distance from UCLA. If we had been within the university's orbit, the prescribed curriculum for a remedial writing course would have been a grammar and mechanics workbook with some short readings, for there is a standard model for the college remedial writing course that's been with us since the 1930s, was in place at UCLA in the late 1970s, and is quite present today. Let me sketch it out for you.

Virtually all state and community colleges and the majority of universities offer some form of remedial writing instruction. In the university, there is typically one remedial course; in the community college, three or four, taken in sequence.

Though there is variation—and some new developments that I'll discuss later—the standard remedial writing curriculum, especially as you move down the remedial ladder to the most basic course, includes a print or online workbook with exercises on grammar and mechanics ("Circle the correct pronoun in this sentence: *their* or *they're*" "Change the tense of the following verbs from present to past"). The workbook might also contain some short general-interest readings. The highest-level remedial course might have a separate reader arranged thematically (sections on work, school, family, coming of age) or perhaps a composition textbook, often with readings. Depending on the level, there will usually be some writing assignments, ranging from, at the lowest level, sentences and single paragraphs up to short papers (often the five-paragraph essay) on a topic related to one's personal experience or a current social issue. Most remedial writing textbooks emerge from and reinforce this standard model.

The first thing that probably strikes you about this curriculum is how familiar it is. The second thing, especially with the more basic courses, is how little it feels like college. A lot of students sense that too.

I want to explore with you the curricular, structural, social class, and symbolic dimensions of the standard remedial writing course, and along the way touch on remedial mathematics as well.

There are long-standing—and seemingly reasonable—assumptions about language and learning that underlie this approach to writing instruction. And I heard them all once I moved to the Tutorial Center at UCLA and became acquainted with both the remedial textbook market and remedial programs at four- and two-year colleges up and down California.

Here in a nutshell is the rationale for the curriculum and for the lockstep sequence of courses. To teach a complex skill, especially if someone is having difficulty with it, you break the skill down into its constituent parts and have novices practice and practice them. In writing, fundamentals would be the rules of grammar and mechanics as represented in those workbook exercises. In addition to breaking down, you want to keep a tight focus on the task—writing—and remove potentially confounding variables, like reading skill. So if readings are used, they are usually kept simple and at a minimum. This parsing out of reading from writing is structurally reinforced in many institutions with reading and writing each having its own department. Another potentially confounding variable you want to control for is complexity of topic: what students write about if writing beyond the sentence is involved. The standard remedial playbook for decades and decades includes topics involving one's personal experience ("Write about an event that changed your life") or a broad social issue ("Why should we vote?"). Reinforcing these assumptions about writing and learning is an assumption about motivation. I would hear often that remedial writing students could be overwhelmed—which is true—and that therefore we need to keep assignments within a comfort zone and give students the experience of succeeding.

You've got a pretty tight web of assumptions here, internally coherent, the common sense of remediation. Similar assumptions drive the standard approach to remediation in reading and mathematics.

But common sense wasn't always common; it begins somewhere. A lot of you will recognize this atomistic skills orientation to learning as the simplified behaviorism of early academic psychology—E. L. Thorndike and company. The remedial English class so familiar to us will take shape during the early twentieth century when this approach to the study of language is in ascendance, an approach that researches language by reducing it to its discrete elements and defines growth as the accretion of these elements. The way to remedy error is to do studies that precisely determine common errors (e.g., subject–verb agreement), and then develop exercises to build "habit strength" in correct agreement. The workbook and "practice pad," new to the market at this time, provided the vehicle for such practice. And you will find exercises in the workbooks of the 1920s that are similar to the ones in workbooks and on computer screens today.

The problem is that we have over half a century's worth of work in linguistics, rhetorical and writing studies, cognitive and cultural psychology, and education that undercut this approach and the aforementioned assumptions that support it. Language growth is much more complex—and what I'm going to say applies equally to native and nonnative speakers of English. Isolated workbook or online exercises don't necessarily transfer to one's writing. Error in writing is not static; errors corrected in basic narrative can reemerge in more complex exposition. To remove or reduce reading and to assign primarily personal or general opinion assignments does not prepare one to write for most of the other courses in the academic or vocational curriculum, courses most students are in at the same time they are taking remedial writing. And as for the claim that students' academic identity and motivation will benefit from unchallenging assignments—that's both unsubstantiated and patronizing. Finally, on the structural level, that sequence of courses has proven to be more of a barrier than an aid to college success; a striking number of students—especially those placing in the more basic courses—never make it through the series to freshman English.

Complementing these reductive assumptions about learning is a second foundational influence on remediation, and when I was running the Tutoring Center and developing preparatory programs, I heard it frequently from administrators and faculty, English to biology, university to community college. Mixed with the language of skills there was a language that sounded both medical and psychometric. Students in remedial classes had "handicaps," "disabilities," "defects," and "deficits" that had to be targeted and treated—almost as though their writing or math problems were organic and could be diagnosed and surgically removed. This vocabulary fits nicely with the aforementioned atomistic approach to language and language growth.

I also heard a more generalized blend of the organic and psychometric, essentially that students were in remedial courses because they were limited cognitively. They can't think clearly or logically, or have trouble with abstraction, or just aren't that smart. No surprise that a common name for the remedial writing course was Bonehead English. I still hear the term today.

Partly to counter claims that these students weren't intelligent and partly to generate theoretical explanations for their problems with writing, some people in writing and literary studies drew from contemporary theories about cognitive development and brain function and applied those theories to remedial writers. Perhaps flawed writing is caused by differences in cognitive style, or in brain activity, or from being arrested at the Piagetian stage of Concrete Operations, or from growing up in a subculture that is oral more than literate. This is a kinder, gentler set of

explanations than saying students are stupid, but it still posits fundamental differences in brain function and language use. Some of the vocabulary has changed, but remedial discourse is still full of loose talk about "learning styles" as well as about "handicaps" and "disabilities." This brew of organic and psychometric discourse locates all causality within the individual and reduces and reifies problems with reading, writing, or mathematics.

As best as I can tell, this perspective on remediation has its origins in the first few decades of the twentieth century as medical doctors begin to work with children who today we would recognize as having a learning disability. But without knowledge of learning disabilities, the physicians analogized from the symptoms of adult stroke victims to explain the children's difficulties with language; somehow the otherwise healthy children were born with the processing liabilities that in adults comes from cerebral trauma. And as physicians began to pose more functional rather than trauma-based explanations and treatments for the children's difficulties, their language remained medical. One influential expert wrote of the "handicap" of these "physiological deviates."

As often happens with labels and categories, the remedial designation grew to include a wider and wider range of students, virtually anyone having difficulty in school, from those with poor vision or inadequate vocabulary to those who were just shy. Yet the medical cast remained. Here is a passage from a 1930 textbook on written examinations:

> . . . teaching bears a resemblance to the practice of medicine. Like a successful physician, the good teacher must be something of a diagnostician. The physician by means of general examinations singles out individuals whose physical defects require more thorough testing. He critically scrutinizes the special cases until he recognizes the specific troubles. After a careful diagnosis he is able to prescribe intelligently the best remedial or corrective measures. (Lang, 1930, p. 38)

It is telling that during the 1930s one of the nicknames for college-level remedial classes was "sick sections." In the 1940s it was "hospital sections." And, as I mentioned, there is the more recent appellation of "Bonehead English," not pathologic, perhaps, but calcified, organic, thick, and dense.

What happens to reading, writing, and mathematics in such an environment? They become narrow, mechanical pursuits, stripped of fuller meaning. Students are tested, placed in courses, strive to fulfill requirements, are tested again, jump through another hoop. There's no denying that many students over the years have learned valuable things in these courses because of dedicated and inspiring teachers, but when you look at the broad picture—or if you simply spend time in the typical class and talk to students—you see how much effort is spent with such limited gains. Students will define "good writing" as not making grammatical mistakes. To be proficient in mathematics you have to "memorize the rules." Grammar and algorithmic procedure are crucially important, but to define literacy and numeracy that way is like defining basketball as dribbling. Even introductory general education courses in political science, or biology, or astronomy are not taught in this fashion. A real grasp of literacy and numeracy doesn't seem to be the goal.

Consider as well the image of the person that is created by the medical-psychometric discourse and the skills and drills approach to instruction. It is an image tinted with abnormality and stigma and conveys a pretty undynamic and unnuanced mental life. The image is also marked by social class and race. To be sure, a number of students from middle-class and well-to-do families are in remedial classes. When I was doing the work, I taught more than a few of them. But for all the reasons we know—from inadequate schooling to family disruptions stemming from housing, employment, health, or immigration status—low-income students are overrepresented in remedial

classes, and, in many locations, these students are largely people of color. This is where that remedial language of handicaps and differences has further insidious ramifications, for we have a societal tendency to meld poor academic performance with cognitive generalizations about class and race. Witness *The Bell Curve* (Herrnstein & Murray, 1994).[3]

Further issues of status and bias—both structural and symbolic—run throughout the remedial system. There is a status hierarchy of disciplines in higher education; not all courses are created equal—and the remedial course is in the lower depths. This inferior position is underscored by the fact that the courses for the most part do not carry credit, and credit is the institutional signifier of legitimacy. (Lack of credit also has economic consequences for students in terms of persistence, degree completion, and possible transfer.)

And, of course, there is not only a status hierarchy among disciplines but among postsecondary institutions as well, from elite research universities to the central-city community college. Though universities have had some type of remedial or preparatory course or program in their curriculum since the mid-nineteenth century, they have always been a source of vexation—and, at times, something akin to moral panic. We are seeing attempts in at least a dozen states now to move remedial courses from the college and university to the community colleges. Conversely, the open-access community college for much of its history has provided remedial or preparatory work as part of its mission, though the demand has increased as the nation urges more people into postsecondary education, as more people seek some small advantage in an unstable economy, and as state legislators and university administrators push remediation down the status ladder. And these open access colleges where the low-income populate are the least resourced of our institution of higher learning—and in many states, their budgets are being cut.

The people who teach the courses at the university or college level are almost always graduate students or adjuncts, and adjuncts are widely used at the community college level as well. These people have the least power among faculty. And because of the constraints on their role and time—and the fact that many adjuncts are zooming to two and three colleges to make a living—they typically don't have the time or training to rethink the remedial curriculum. (Some do, but it is a daunting task.) Thus those remedial textbook publishers who replicate the curriculum are, in part, responding to the market.

Though some who teach remedial classes, in the words of one community college department chair, "resent the students and feel they [the instructors] deserve better," it's been my experience that many of those who teach the courses put considerable effort into doing right by their students, and some achieve impressive results. But even if they resist it, they do that work within the remedial superstructure.

These interlayered dimensions of educational remediation—the curricular and ideological, the structural, and the symbolic—are a formidable barrier to change. Reformers might alter something structural, but the assumptions beneath the curriculum remain the same. Or instructors might create new curricula but can't simultaneously work on the structural level. Comprehensive change begins to feel remote.

But, in fact, remedial education has worked for some students, powerfully so. And there is a long history—unfortunately not well known in larger policy circles—of teachers working against the grain and developing educationally rich curricula and programs. Furthermore, we are at a

[3] *The Bell Curve* has been criticized on a number of counts, but for a sympathetic yet trenchant review of the book, see Heckman (1995).

propitious time when public and philanthropic resources are focused on remedial education, and a lot of smart people are experimenting with new curricula, with online learning, and with altering those restrictive course sequences. The crucial, the absolutely foundational questions facing us are: How will we define the students in remedial education? And what kind of education will we envision for them?

I'll return to remediation at the end of this article. But let me now turn to one of the other barriers to a robust education for those who haven't been on the scholastic super shuttle: the division between the academic and the vocational course of study.

Let's go back to those novice welders we met a little while ago. Along with the basic math class, the instructor teaches the students how to read blueprints, and often the math and blueprint reading blend together. Among other materials, the instructor uses the blueprints from a recent campus construction project, and the prints sometimes bear numbers or notes scribbled by the architect or contractor. This blueprint work provides the occasion for some pretty impressive reasoning. The students have to know the function of different kinds of welds and whether or not a weld would be appropriate in a particular place represented on the blueprint. They have to visualize a structure from the blueprint and perform various mental operations on it: How multiple pieces will fit together. What happens to them when you weld them? And the arithmetic they're learning or reviewing is materialized in an actual building, and they have to imagine arithmetic in three-dimensional space and solve problems and make judgments using it. In these moments, basic math isn't so basic.

Every once in a while, the notations added by architect and contractor will be unclear or, worse, there will be a discrepancy between them. These situations reveal the ability of some of the students to apply what they know to an ambiguous problem.

After math, after blueprints, the cohort of students join other cohorts out in the large welding workshop. It is loud with grinders, and hammering, and the sum total of all the pops and zaps of the welding instruments. There's the acrid smell of heat and electricity in the air. And there are bursts of sparks and intense light all across the room. You have to wear a mask to observe the students at work.

When you talk to them after a weld, you get a sense of their developing knowledge of electricity, and metals, and the pros and cons of different welding processes. The instructor, who travels among them—checking in, giving quick demonstrations—helps them use this knowledge to solve problems and figure out how a weld went wrong. In addition to their technical chops, they're developing an aesthetic sense of the work—they talk about a "beautiful" weld—and an understanding of the relationship of aesthetics and function. And they're developing an ethics of practice; a bad weld can have big consequences. "A bridge is only as strong as its weakest weld," the other instructor in the room tells her students. "You're taking two separate entities and making them one. You're like a surgeon, but you're working on metal. So take it to heart."

One of the abilities the students develop is particularly fascinating to me, and that is the intricate interplay between kinesthetics and thought.

Around the perimeter of the workshop are small cubicles that shelter the main room from blinding light and also enable students to practice certain kinds of welds. Tommy steps out from one of them, sees me, flips up his mask, and slips off his right leather glove to shake hands—warm and damp from the heat. He's one of the second-semester students from the math class. I ask him what he's working on in there, and, with increasing animation, he explains and demonstrates how

he's practicing his vertical and overhead techniques. I say I can't imagine welding overhead, and he laughs, "Overhead is something else!"

The central precepts of welding are travel—the speed of your movement of the instrument—the distance of the instrument from the metal, the angle of it, and how hot you've got it. And you have to be steady. Tommy puts one foot in front of the other and raises his right hand, forefinger out like a welding tool. He braces himself, though he can't be rigid, for that will impede the fluidity of his movement.

Travel, angle, and all that are further complicated in some processes by the fact that the electrode conducting the current is being used up as you weld, so you've got to continually adjust your travel speed and angle and distance to keep things constant—for consistency is crucial to producing a good weld. And you're doing all this over your head. Tommy relaxes his stance and looks at me. "There's so much you need to know," he says, tapping his forehead. "So much to think about."

Tommy is engaged in intense self-monitoring and analysis of his performance and significant intellectual work in applying what he's been learning to the task in front of him. It's hard to know where to mark the Cartesian separation between body and mind. Touch and concept blend in activity. Of course, as Tommy masters his trade, his response to the dynamic variability he describes will become second nature. We typically use words like "routine" and "automatic" to describe this level of expertise, but I think that vocabulary erroneously suggests that at a point in development, mind fades from physical performance. It's true that constant monitoring does diminish, but not mindfulness and not that fusion of touch and concept, as you'll see in welding, or hairstyling, or heart surgery when something goes wrong. Suddenly attention is focused, and all kinds of knowledge rush in on the moment, right through the fingertips.

This is the kind of thing that captivated me for the six years I spent researching and writing *The Mind at Work*, an exploration of the cognition involved in blue-collar and service occupations. There's a level and variety of mental activity involved in doing physical work that is largely unacknowledged, even invisible—especially in our high-tech era. This diminishment of occupational cognition bears directly on big issues in education: the decades-long effort to reform Career and Technical Education, the college-for-all debate, and the current initiatives to get more low-income people into and through postsecondary certificate or degree programs. These laudable efforts occur on a centuries-old landscape marked by a sharp divide between the academic and the vocational course of study. It's this divide that I want to consider with you now, for I think it terribly narrows our understanding of human cognition and straightjackets our pedagogical imagination.

As we saw with remediation, there are curricular-ideological, structural, and symbolic dimensions to this issue, and they are tightly interconnected.

The ideological foundations for a status-laden and cognitively inflected distinction among kinds of work go quite far back in Western thought. In *The Republic* Plato (1945) notes that the soul of the craftsman is "warped and maimed" (p. 203), and in his *Politics* Aristotle (1972) proposes that artisans and merchants be denied citizenship because their work is "ignoble and inimical to goodness" (p. 503). Though there certainly are dissenting voices in Western intellectual history, from St. Augustine to our own John Dewey, it is striking how pervasive this perspective is. It certainly runs through America's cultural history—odd in a country with an anti-intellectual streak and such a strong orientation toward practicality.

Looking back over our history, labor journalist John Hoerr (1988) observed, "Since the early days of industrialization, a peculiar notion has gained ascendancy in the United States: that wage

workers . . . lacked the competence to handle complex issues and problems that required abstract knowledge and analytical ability" (p. 273). This tendency was evident when Post-Revolutionary War mechanics were portrayed in editorials as illiterate and incapable of participating in government, and it was alive and well when an auto industry supervisor told me that his workers were "a bunch of dummies."

This set of beliefs and distinctions about knowledge, work, and the social order will affect the structure of educational institutions in the United States. At the postsecondary level there is, as historian Laurence Veysey observed, a tension going back to the midnineteenth century between liberal study and what he called utility. Is the goal of education to immerse students in the sciences and humanities for the students' intellectual growth and edification or to prepare them for occupation and public service? With the increase in vocationally oriented majors since the 1960s, the utilitarian function is clearly in ascendance. Yet you don't have to work in a college or university very long to sense the status distinctions among disciplines, with those in the liberal tradition, those seen as intellectually "pure" pursuits—mathematics, philosophy—having more symbolic weight than business, or nursing, or, well, education. As I said earlier, not all courses are created equal.

Vocational education at the secondary level will take shape in the first decades of the twentieth century with the development of the comprehensive high school and curriculum tracking. This new kind of school was in large part a response to the rapid increase of working-class and immigrant children in urban centers, and tracking seemed an efficient way to address their wide range of educational preparation and ability.

But conceptions of ability were made within the legacy that journalist John Hoerr summarized, and amidst the emergence of I.Q. testing and a full-blown eugenics movement. So there was much talk about the limited mental capacity of various immigrant and working-class groups and the distinct ways their brains functioned. As opposed to college-bound students (overwhelmingly White and middle to upper class) who were "abstract minded," working-class and immigrant students were "manually minded." So there again is the tight chain-link of cognition-education-work-and social class.

This approach to education had an effect on vocational education itself. Surveying the history of VocEd, the authors of a report from the National Center for Research in Vocational Education concluded, "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" (Hayward & Benson, 1993, p. 7). So not only is the intellectual ability of the student diminished, but the intellectual content of work is as well.

There certainly are exceptions to this portrayal of VocEd, both teachers and programs, secondary and postsecondary, where students got an intellectually challenging vocational education. And, though not typically mentioned in this regard, there is a separate history of workers education programs that blend politics, social sciences, and humanities with occupational education, from early twentieth-century labor colleges to contemporary institutions like the van Arsdale Labor Center at Empire State College.

A focused national attempt to enhance vocational education in our time came with the Carl D. Perkins Vocational Education and Technology Act of 1990 which, among other things, funded attempts to increase the academic content of vocational education. The results over the years, as is the case with any reform, have been varied, ranging from the superficial (slapping a prepackaged math module onto a course in business or healthcare) to the substantial: members of both the

academic and the vocational faculty working for months to develop a curriculum that integrates academic and vocational material. And in a few cases, a visionary faculty uses VocEd reform as the occasion to reimagine the very structure of schooling itself and with it the academic–vocational divide. They develop curricula that merge rather than reinforce disciplines and find in the occupational world rich educational content.

This kind of innovation is hard to achieve, however, for we have a situation similar to the one we have with remediation: a tight cluster of culturally transmitted assumptions about cognition, knowledge, academic achievement, and social class that constricts our educational imagination. And the way subject areas and disciplines are organized in school contributes to the problem. Future teachers come to view knowledge in bounded and status-laden ways. And there is no place in, let's say, a historian's training where she is assisted in talking across disciplines with a biologist, let alone to a person in medical technology or the construction trades.

These separations are powerfully reinforced when people join an institution. The academic–vocational divide has resulted in separate departments, separate faculty, separate budgets, separate turf and power dynamics. Now egos and paychecks enter the mix. These multiple separations lead to all sorts of political tensions and self-protective behaviors that work against curricular integration. And it certainly doesn't help that efforts at integration are often framed such that the academic side will bring the intellectual heft to the vocational courses, a laying on of culture. In line with the history I sketched, the cognitive content of occupations is given short shrift.

But as with remedial education, this is a promising moment. All those Perkins-initiated reforms of the last few decades have yielded some terrific programs and ideas. The notion of contextualized learning is getting wide attention. And public and private resources are being directed toward workforce development for the new economy. As with attempts at reform of remediation, the big question is: What kind of education will all this yield?

Let me begin to wrap things up with two observations and three considerations. First, the observations.

When I was teaching remedial English I would tell people who asked that one of my primary goals was to change the model of writing my students carried in their heads. Over our time together, I wanted them to begin to conceive of writing as a way to think something through and give order to those thoughts. I wanted them to understand writing as persuasion, to get the feel for writing *to* someone, a feel for audience. And, man oh man, did I want them to revise their writing process, which for most of them was a one-draft affair typically done the night before or the morning an assignment was due. And though I paid a lot of attention to grammar and mechanics, I wanted them to see that good writing was more than correct writing. After years of basic skills-oriented instruction, correctness—which is harder than hell to achieve if writing isn't meaningful to you—became their elusive holy grail.

That welding instructor will be the first to tell you that he doesn't know math very well. The ideal, he believes, would be to have a math teacher demonstrating the division of decimal fractions and calculation of volume, and explaining the *why* of what the class is doing, the mathematical principles involved. But what the welding instructor does do in that dingy little room adjacent to the welding workshop is bridge the academic–vocational divide and thereby redefine for his students the meaning and function of mathematics.

Now to the three considerations.

The first has to do with research methodology and education policy. I opened this article by suggesting that what you see depends on where you sit and for how long. I don't think I'm saying anything controversial to note that most higher education policy research on remediation and on Career and Technical Education does not include historical analysis of the beliefs about cognition and instruction that inform curriculum. In fact, there's not a lot of close analysis of what goes on in classrooms, the cognitive give and take of instruction and what students make of it. And I'm not aware of any policy research crafted with the aid of people who actually teach those classes. Finally, we don't get much of a sense of the texture of students' lives, the terrible economic instability of some of them, but even less of a sense of the power of learning new things and through that learning redefining who you are. Student portraits when we do get them are too often profiles of failure rather than of people with dynamic mental lives. There are several obvious reasons for this state of affairs.

There is the fact that most of us are trained and live our professional lives in disciplinary silos. There may be no way around that in this day and age, but the least we could do is pull in more people from other silos and lock ourselves together in a room with pen and paper—and iPads too. Let me give you one example of how mind-boggling, and I think harmful, this intellectual isolation can become. In all the articles I've read on remediation in higher education journals, not one mentions the forty years' worth of work on basic writing produced by teachers and researchers of writing. There is even a *Journal of Basic Writing* that emerged out of the experiments with open admission at CUNY in the 1970s. Not a mention. Zip.

In addition to disciplinary silos there are methodological silos. You won't find a randomized control trial in the 130-plus issues of the *Journal of Basic Writing*, and that for some is sufficient reason to ignore them. I don't have time to go into the epistemological narrowness that ensues—you can read the best of research methodologists like Donald Campbell and Lee Cronbach on that topic—but I do want to suggest that if we hope to really do something transformational with remediation and with the academic–vocational divide, we'll need all the wisdom we can garner, from multiple disciplines and multiple methodologies, from multiple lines of sight.

Which leads to my second consideration.

I've said several times in this article that we are at a promising moment, what with all the attention and funding, public and private, focused on remediation and occupational education. Maybe the better way to say it is that we're at a crossroads, and it's a terribly consequential one.

The probable road, given the way these things go, will lead to some worthwhile changes—shortened course sequences, for example, or better data collection on students in those courses. But the standard model of remediation or the divide between the vocational and the academic course of study will remain unchanged. So, to pick one illustration that is already emerging, we will have the development of more precise computerized tests of basic skills along with technically sophisticated modules aligned with those tests. As Bill Gates said during a recent radio interview, we will pinpoint what a student has trouble with and then "drill in" on that skill. This approach—and note his language—doesn't change the mechanistic theory of learning underlying such a program and doesn't represent a robust notion of literacy or numeracy. Mr. Gates didn't revolutionize the computer industry by making modest changes to existing technology. He rethought it. He and all of us need to think creatively and generously about the way we use electronic technology in remediation—for it is quickly becoming the magic bullet of basic skills.

The other road, the one I've been taking us down, is possible right now, though it will require us to draw on more kinds of knowledge and more methodological perspectives than we typically

use. This broader set of maps and instruments would enable us to consider simultaneously the curricular-ideological, the structural-economic, and the social class and symbolic dimensions of remediation and the academic–vocational divide.

But we will need one more thing, and that takes me to my third and final consideration.

To truly seize the moment we will need a bountiful philosophy of education—and the leadership to enact it. At the same time that there is a push to get more low-income people into postsecondary education, cash-strapped states are cutting education budgets, leading colleges to limit enrollments and cut classes and student services. In my state of California (and in other states as well) some policy makers are raising the possibility that we can no longer afford to educate everybody, that we should ration our resources, directing them toward those who are already better prepared for college. We have here the makings in education of a distinction historian Michael Katz notes in discourse on poverty, a distinction between those deserving and undeserving of assistance. Enter once again the not-so-hidden injuries of social class blended with the stigma of underpreparation. In the midst of a powerful antigovernment, anti-welfare-state climate, will there be the political courage to stand against the rationing of educational opportunity?

The democratic philosophy I envision would affirm the ability of the common person. It would guide us to see in basic skills instruction the rich possibility for developing literacy and numeracy and for realizing the promise of a second-chance society. It would honor multiple kinds of knowledge and advance the humanistic, aesthetic, and ethical dimensions of an occupational education.

The de facto philosophy of education we do have is a strictly economic one. This is dangerous, for without a civic and moral core it could easily lead to a snazzy twenty-first-century version of an old and shameful pattern in American education: Working-class people get a functional education geared only toward the world of work. To be sure, the people who are the focus of current college initiatives are going to school to improve their economic prospects. As one woman put it so well, "It's a terrible thing to not have any money." But people also go to college to feel their mind working and learn new things, to help their kids, to feel competent, to remedy a poor education, to redefine who they are, to start over. You won't hear any of this in the national talk about postsecondary access and success. For all the hope and opportunity they represent, our initiatives lack the kind of creativity and heartbeat that transform institutions and foster the wondrous unrealized ability of a full sweep of our citizenry.

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APPENDIX

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