

around those oral histories, which are important to me because I grew up with them but never thought to document them. This process allowed her to do that and to give her the time so that she wasn't doing the rote kind of work our children used to do, but she was placing her time in something that was meaningful and important to her, and she was excited about that.

The history of progressive education has largely been written in schools for young children—in kindergartens and early childhood centers and Head Start centers. Its spokespeople have been professionals who have studied and practiced their craft with the young. Maria Montessori, Jean Piaget, John Dewey, Lillian Weber and Barbara Biber, and so many other teachers who have gone before. They created schools where what students studied was intimately connected to their lives, and where people had a chance to work and learn side by side. Our success at CPESS is to re-create those structures and to implement goals in settings where older students learn. It is also our challenge.

We have created a structure where it is possible to learn to know students well so they can learn to use their minds well; we have created a structure where teachers can be in responsible control of their professional lives and where there is a strong professional community supporting them; we have created an assessment system that can hold students to high standards without standardization; we have created a curriculum structure based on habits of mind that focus on tools for thinking, not just bits and pieces of information. That's the easy part; the hard part is making it happen.

### 3

## Beyond the Shop: Reinventing Vocational Education

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LARRY ROSENSTOCK AND ADRIA STEINBERG

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Vocational education straddles a fundamental contradiction. On the one hand it has long been, and still is, a means of providing an education to students who would not otherwise attend school. On the other hand, it has created a dual system in which lower income students are tracked into vocational classes and away from the academic courses that prepare other students for further education and higher income, white-collar jobs.

The Rindge School of Technical Arts opened in 1888 as the first public vocational high school in Massachusetts, and the second in the United States. Built with funds provided by a local industrialist named Frederick Rindge, the school still displays his sentiments, carved in granite over the front door: "Work is one of our greatest blessings. Everyone should have an honest occupation." Frederick Rindge acted out of a democratic impulse, yet helped create a mechanism for the "sorting of students by their evident and probable destinies" (Carnoy and Levin 1985, p. 94).

The groundwork for Rindge's generous bequest had been laid 50 years earlier in Massachusetts, when the State Board of Education, led by Horace Mann, argued that the Common School system should be expanded to bring together in the schools children from all backgrounds. Concerned that many rural and working-class families still did not send their children to school, local boards sought to differentiate the types of

schools available. The introduction of vocational schools with agricultural and mechanical programs was described as providing a practical reason for Irish immigrant and rural students to attend.

By the 1880s and '90s, secondary schools were increasingly viewed as avenues to middle management jobs in the new industrial firms. Aware of the increasing strength of organized labor, the business sector sought to create programs that would train students in the new technical skills needed by industry, instill in them attitudes of loyalty to their employers, and socialize them for an industrial economy. Thus emerged in Massachusetts the first dual system: one to educate middle- and upper-level managers, the other to train laborers and clerical workers.

Despite criticism of the narrow, utilitarian nature of vocational education, it continued to spread, advocated by the newly formed National Association of Manufacturers and opposed initially by organized labor. A 1906 report by the Massachusetts Commission on Industrial and Technical Education triggered a debate between John Dewey and David Snedden, the Commissioner of Education in Massachusetts. While Snedden defended the efficiency of the dual system, Dewey saw the segregated vocational education favored by business as a "form of class education which would make the schools a more efficient agency for the reproduction of an undemocratic society" (Westbrook 1991, p. 175). Dewey viewed the issue of vocational education as central to the future of democracy; his framing of the issue still resonates strongly today:

Its [vocational education's] right development will do more to make public education truly democratic than any other agency now under consideration. Its wrong treatment will as surely accentuate all undemocratic tendencies in our present situation, by fostering and strengthening class divisions in school and out. . . . Those who believe in the continued existence of what they are pleased to call the "lower classes" or the "laboring classes" would naturally rejoice to have schools in which these "classes" would be segregated. And some employers of labor would doubtless rejoice to have schools, supported by public taxation, supply them with additional food for their mills. . . . [Everyone else] should be united against every proposition, in whatever form advanced, to separate training of employees from training for citizenship, training of intelligence and character from training for narrow, industrial efficiency (Dewey in press).

Although there was deep disagreement about the direction of vocational education, it nevertheless had wide support. A powerful lobbying organization, the National Society for the Promotion of Industrial Education, was supported by a broad range of groups, including educators, the Chamber of Commerce, the National Association of Manufacturers, the American Federation of Labor (sensing the inevitability of vocational education, labor wanted a voice in redirecting its anti-union bias), major farm organizations, and settlement workers.

The campaign culminated in the passage of the Smith-Hughes Act in 1917, which began the federal support for vocational education that has continued until the present. The fundamental contradiction of vocational education was set: while it profoundly transformed the rate of Massachusetts high school enrollment from a mere 6.7 percent of 14- to 17-year-olds in 1888 to 32.3 percent of that population by 1906 (Krug 1969, p. 220, quoting the 1906 Report of the Massachusetts Commission on Industrial and Technical Education), it became a separate, second-class system under separate control. (Dewey's advocacy of a single system won a Pyrrhic victory: vocational education was incorporated into the public school system, but as a distinct track within that system.)

The segregation of vocational education was further reinforced by two other concomitant factors. The first, the compulsory education laws of 1923, captured into vocational programs many young people who were now required to go to school. At the same time, "intelligence tests" such as the IQ and Binet were developed and used to channel students toward either vocational or academic concentrations.

By the time of the authorization of the Carl D. Perkins Vocational Education and Applied Technology Act of 1990, Congress was receptive to the idea of substantially reshaping vocational education. Widespread dissatisfaction with the job entrance rates and wage rates of vocational school graduates, combined with strong pressure from a coalition of national advocacy groups led by the Center for Law and Education,<sup>1</sup> galvanized support for change. With only 27 percent of all vocational school graduates working for even a single day in a job related to their vocational training (*National Assessment of Vocational Education* 1987),

<sup>1</sup>The Center for Law and Education, based in Cambridge, Massachusetts, and Washington, D.C., advocates for the educational rights of low-income students and parents throughout the United States. Paul Weckstein, codirector of the center, was a pivotal conceptualist and advocate for the new directions called for in the Perkins Act.

the time had come to move away from narrow skills training for specific occupations to broad instruction in “all aspects of the industry.”<sup>2</sup>

Just over a century after its founding, Rindge was poised, once again, to play a leading role in defining vocational education. We had a veteran faculty, a new executive director (Larry Rosenstock, a former carpentry teacher at Rindge, returning after two years as a staff attorney for the Center for Law and Education), a new academic coordinator (Adria Steinberg), and the full support of Mary Lou McGrath, the superintendent of the Cambridge Public Schools, who instructed us to comply with the Perkins Act, and to “turn the program upside down and inside out” in order to do so. It was our task to help the faculty put the rhetoric of Perkins and the progressivism of Dewey into daily practice at Rindge.

### *CityWorks*

*“Some people seem to have a problem with the Rindge School of Technical Arts. They are always putting RSTA down and stereotyping us: . . . the students in RSTA are dumb; they will not go to college; they are going to drop out. Well, I will not take this anymore! . . . Being a freshman in RSTA, I am positive that I will go to college, and a lot of my confidence has come from my teachers. RSTA students have worked hard, demonstrated enthusiasm, and displayed some great exhibits. We are smart, not only in mind, but also with our hands. We have, or will have shortly, an advanced technological mind as well as an academic mind. . . . We give respect, so we expect respect. Success demands it!”*

In March 1993, Paulina Mauras published this statement in our high school newspaper. Her anger is not surprising. As a 9th grader in the vocational wing of Cambridge’s comprehensive high school, Paulina suffers from the low status accorded vocational education and all who enter it.

What’s worth noting is that this 14-year-old is ready to do something about it. She is acting the way one would hope all members of a participatory democracy could act: speaking out publicly in protest of something she sees as unfair, challenging class stereotypes, showing

confidence in herself and her working-class peers, and seeing herself as a member of a community.

Paulina’s notion of combining hands and mind, and the development of her skills in doing so, come directly from her experiences in CityWorks, the centerpiece of the 9th grade program at Rindge. Cambridge is the “text” as students investigate the neighborhoods, the systems, the people, and the needs that compose an urban community. Students work on individual and group projects, bringing aspects of their community into the classroom by creating numerous “artifacts” of Cambridge: maps, photographs, tapes, oral histories, and three-dimensional models.

Several features make this program unusual. First, CityWorks combines key characteristics of vocational programs—a project approach, apprentice-master relationships, and real clients—with the broader content and essential skills of academic education. Projects involve hands-on work, like making a wall-size map of the city and wiring it to light up selected landmarks. At the same time, students engage in problem solving, like deciding where on the map to locate a new teen center that would attract youth from all ethnic and racial communities of the city.

Second, CityWorks is taught in a space designed for collaborative project work. Looking for an alternative to both shops and classrooms, we borrowed the notion of “studios” from design schools. There is an open area at one end of the room for large-group activities such as demonstrations and exhibitions, but most of the room is subdivided into studios where teachers work on projects with small groups of students. This arrangement gives participants the flexibility to regroup, team up, or borrow tools and materials as the project requires.

Third, community representatives are invited to help create a context for students’ efforts. Staff members from city agencies and programs identify unmet community needs that students could address and also serve as an authentic audience for students’ finished products and presentations.

At a recent exhibition of students’ work, several teams of students displayed drawings and scale models of a heritage museum they had designed for Cambridge. Each group had a different conception of where the museum might be located and how it should be designed. The museum builders sat with their models to explain their ideas as parents, city officials, and local businesspeople filtered through the exhibit.

<sup>2</sup>The Perkins Act mandates that all vocational students “gain strong experience in and understanding of all aspects of the industry they are preparing to enter, including finance, planning, management, underlying principles of technology, technical and production skills, labor issues, community issues, health and safety issues, and environmental issues as they pertain to the industry.”

In making the models, the museum builders were responding to a request from the city's tourist agency, which is in the process of raising funds for a museum. Six weeks before the exhibit, the agency director had come to speak to CityWorks students and ask for their help in this effort. With thousands of people visiting the city each year, it was important for students to understand the tourism industry and to help plan its development in a way that would take the needs of residents into account.

In addition to the museum builders, several other groups of students involved themselves in the question of what visitors to the city should see and do. Rejecting existing brochures featuring "Old Cambridge" and Harvard University, one group designed a tour and brochure featuring places of interest to visiting teens, while another created a "Sweet Tour" brochure for visitors seeking the best desserts in town. A third group of students liked the idea of highlighting the efforts of a "local hero." They videotaped an interview with John E. Gittens, a founder of the Cambridge NAACP, and learned that he had led a neighborhood organizing effort to get the city to open a new playground named after a child who was struck by a car when he was playing in the street. Their brochure featured a map locating the playground as well as the story of its creation. All three brochures, along with a T-shirt that another group of CityWorks students designed, have since been adopted by the board of the tourist agency as products that are marketed and distributed.

The goal of CityWorks projects is to help students understand their community and its needs, and ultimately to see themselves as people who can affect that community and create new opportunities for themselves and others who live or work there. Through the lens of community development, students arrive at a very different and more positive vision of what it means to be a vocational student. The point is not just to make things, learn some skills, and get a job, but rather to become thinkers and solvers of problems who work well together in teams and communicate well with various audiences.

### *Toward Participatory Democracy in School*

If Paulina had entered Rindge four years earlier, the program she entered would have been very different from CityWorks, but remarkably similar to the one in place in 1888, when Rindge opened. In fact, thousands of other high schools in this country today still offer such a

program: freshmen in vocational education go through an "exploratory" in which they sample each of the shops available in the school, such as metalworking and carpentry. Teachers work in the autonomous isolation of their shops or classrooms; students suffer from low expectations and minimal or diluted academics.

This system, unchanged since its original design for the industrial revolution over a hundred years ago, is based on the outdated and undemocratic premise that 15-year-olds of lower income families should predict their adult occupation (Rosenstock 1991). (Who among us at 15 thought we would be doing what we are doing today?) In short, the 9th grade program functions as the gatekeeping mechanism that begins the stark segregation of vocational students by social class, race, gender, and language ability.

In choosing CityWorks, we rejected the purely consumerist notion of democracy so prevalent in American high schools today, which is that schools offering the most options in courses and shops are best—even if these offerings are shallow and force students into a track. Our goal was to move toward a more participatory model where teachers work together toward the collective interests of the students and the school; where students are engaged, active participants in their learning and in their community; and where parents and community members have real roles in the school's programs. We saw a new mission: to use vocational methods—experiential and contextual learning, team teaching, cooperative learning, and performance assessment—so that vocational students can learn the same basic and advanced academic skills and critical thinking skills that *all* students should learn for further education or for work.

In 1990, more through instinct than anything else, we began a participatory planning process to develop a new 9th grade program. What we didn't realize is that the process of creating CityWorks would be as important in developing a democratic culture as the program itself—because of its impact on teachers.

In embarking on program redesign, we set ourselves three ground rules. The first was to keep everyone in the department informed of all that we were doing. The second was that nobody would have to participate who did not want to. And the third was that those who did not want to participate would not be allowed to interfere with the efforts of those who did. When the first call went out for people to join a design team, six people volunteered.

### Letting the Teachers Lead

By the fall of 1991, the team had come up with an overall conceptual framework for CityWorks, fiddled with the schedule to create unprecedented daily meeting time for teachers, and begun to design and renovate a space that would house the new program. We began the school year with enough classroom activities to last only about one month. The rest would have to come from the CityTeam meetings in which everyone teaching the course would participate. Although not having all of CityWorks plotted out was a bit terrifying, we knew that handing teachers a finished curriculum would be a mistake.

Teachers, like students, are not empty vessels into which the current wisdom can be poured. For years, vocational teachers at Rindge had spent virtually all of their time at school teaching occupationally specific, narrow, technical skills. Most believed this is what being a vocational teacher was all about. State-mandated curricula reinforced this notion. Vocational teachers received manuals for their shop areas listing duties and tasks that were to fill the students' days.

If we wanted our school to be a place where all kids could be active participants in a democratic culture, we would have to structure a program where all teachers could be too. We would have to encourage teachers to unearth the reasons beneath their current practice, and to reconsider that practice in the light of changing economic and social realities. In other words, we had to respect and make room for them as thinkers as well as doers.

We suspected that Rindge teachers were experiencing a kind of cognitive dissonance. Certainly the curriculum they were teaching at school left out much of what they knew to be important in their own work and lives outside of school. This point was brought home to us early in our reform efforts during a conversation with a teacher who had taught carpentry at Rindge for many years. Like many vocational teachers, he was an independent contractor outside of school. He explained that he would very much like to turn his business over to his sons, both of whom were skilled carpenters. The problem was that neither seemed to be good at most of the other tasks associated with running a successful contracting business: for instance, making good estimates, writing contracts, managing cash flow, dealing with clients and subcontractors, and getting variances from the local zoning board. These are all skills that are rarely taught in vocational schools.

This teacher held within his own experiences the seeds of a new approach to practice. The students in his classes should not be limited to banging nails, but should learn the range of skills that he knew as a parent, citizen, and small contractor were needed by his own sons.<sup>3</sup> The challenge for us has been to create a professional culture that encourages teachers to share their experiences and reflect on their practice. Several strategies have been particularly critical to that effort.

**Common Planning Time.** The most basic change we have made is to give teachers both informal and formal opportunities to work together. Their close physical proximity in the CityWorks room opens the possibility of joint projects. Daily required CityTeam meetings ensure that such possibilities will be discussed.

To create a meeting time in the daily schedule necessitated closing the shops for a period, an unpopular move with both our own teachers and the counselors from other parts of the high school who signed students up for shops as electives. But the daily meeting time is critical to what we are trying to accomplish. The meetings are a time to reflect on what is happening in CityWorks, to review, revise, and propose curriculum activities and, more generally, to get to know one another and explore the possibilities for collaboration.

**Including "Outsiders."** From the beginning, the vocational teachers who staffed CityWorks have been joined by a variety of people from very different backgrounds who bring other perspectives and experiences to the task. The "others" have included several academic teachers, a loaned employee from the Polaroid Corporation, bilingual technical assistants, and, as needed, consultants to assist staff—first in their work on curriculum, later on group dynamics and issues of organizational development. Teachers and students must gain experience in and understanding of the new relationships required of them by the world outside of school.

This mixture creates a forum for reexamining assumptions and for moving beyond the specific skills involved in particular trades or subjects to what is important for all students to know and be able to do by the time they leave the program. At one critical junction, for example,

<sup>3</sup>What the best and wisest parent wants for his own child, that must the community want for all of its children." From J. Dewey, *The School and Society* Chicago: University of Chicago Press, 1900), p. 7.

when vocational teachers were resisting collaborative projects in the name of craft specialization, the Polaroid employee talked about the multicraft perspective at his company and at other high-performance workplaces.

**Creating Genuine Interdependence.** Curricular integration, an end in itself, produces important changes in teacher relationships as well. Once isolated in their own shops, and sometimes competing among themselves for students, teachers now plan curriculum and multidisciplinary projects together. As a result, they are more invested in the whole performance of each student, as well as the performance of the whole school.

The daily teacher meetings are productive because they have to be. All teachers know they are about to go in and teach CityWorks the next day (or the next hour). In a very real sense, they sink or swim together. If the program works, it will eventually increase enrollments and attract a broader clientele of students. If it does not, Rindge will suffer the kinds of staff cutbacks seen in other vocational programs. The competitive ethic of the old exploratory does not die easily, but it really is counter-productive in the new structure. It makes much more sense to collaborate, to nurture and support new ideas, and to look to one another for project ideas and strategies. This shared reflection has contributed to a new level of collegiality at Rindge. Teachers more often talk with one another about teaching. They plan and make instructional materials together, they observe one another, and they are willing to ask for and provide one another with assistance.

### *Changing Expectations*

Changes are evident in both the formal team meetings and informal time that staff spend with one another. During the first few months of CityWorks team meetings, teachers would almost never comment on a teaching or learning issue without prefacing their remarks with a disclaimer: "I would never say what's right for anyone else," or "This is just the way I do things," or "I know that everyone has their own way of doing things and that's fine."

The frequency of such statements provided clues to an underlying group norm that can best be characterized as "noninterference": "I won't look too closely at what you're up to or tell you what to do; and you won't

scrutinize me" (Little 1992, p. 49). The isolation of traditional schools and the conditions of teaching make teachers view their work with the sometimes fierce independence of artisans (Huberman 1989). For vocational teachers, this perspective is reinforced by their highly specialized work within the school (and outside) as trade artisans.

In the past, Rindge teachers defended the separateness of their shops by citing the differences among their trades, each with its own specific skill requirements. Shop autonomy seemed a natural, and even necessary, condition of vocational education. The most obvious negative side-effect was the competition for students. But perhaps an even more serious problem was that teachers had no reason to identify, nor any real way to address, the broader educational needs of their students. They focused on finding ways to interest students in specific technical areas, but they did not feel responsible for ensuring that all students become better problem solvers or communicators, or gain a solid base of reading, writing, and quantitative and scientific reasoning skills.

It is impossible to pinpoint a moment when the focus changed, but after two years of team meetings, a sense of broader responsibility is now evident within the group. Teachers now share information and are willing to identify competencies that students need regardless of their schooling or career choices. Staff members routinely team up for multicraft projects, and they sometimes even design classroom projects that do not involve their trade specialty at all.

In the early planning stages for CityWorks, the group tended to swing from cynical skepticism ("This will never work!") to unrealistic enthusiasm ("We're almost done!"). Now teachers approach the task of restructuring with a kind of rolling up of the collective sleeve. We all have a noticeably greater tolerance for ambiguity. People are more willing to bring issues to the team for group problem solving and have found ways to deal constructively with disagreements.

Teachers are also evolving a shared language for talking about how they work together and for getting through the inevitable crises. Perhaps more important, we now have a picture of what we could and should become: a high-performance workplace where staff members are highly interdependent, yet each is an active participant, focusing energy on the tasks at hand.

The amount of time devoted to meetings and the intensity of the staff work have, at times, created a worry that we might become too adult-

focused. A school committee member once railed, "I'm sick and tired of hearing about how happy the teachers are at Rindge. What about the kids?" Fortunately, students don't seem to feel this way. When freshmen are asked what is most noticeable or important to them about Rindge, most students begin with this simple statement: "The teachers here really care about you."

Of course, the teachers have always cared about students, but the scope of what they care about has broadened considerably and hence is more evident to the students. In the old way of doing business, teachers had little patience with students who were not ready to make a choice about what they wanted to be and who were not motivated to learn all of the skills of a particular trade. They felt their identity as skilled craft-people slipping away, to be replaced by a much less desirable identity as "caretakers of marginal students" (Little 1992, p. 26).

CityWorks and the other integrated programs give teachers a new identity. Even if students do not express interest in particular trades, teachers no longer feel like mere caretakers. They know that they can help students develop competencies, interests, and attitudes that will serve them well in future schooling or work. Teachers' feelings of self-efficacy are evident to students. Several freshmen recently surprised a visiting reporter by telling her that what makes Rindge teachers different is that they *like* what they are doing.

Not surprisingly, students respond by becoming more engaged with school; their "creative juices" get going and teachers get to see them at their best. The caring and mutual respect go beyond the classroom walls. For example, during the summer a group of students who had just completed their CityWorks year responded to the invitation from one of their teachers to come up with ways to smooth the entry of incoming freshmen. Using the abbreviation R.S.T.A. (from the Rindge School of Technical Arts), they named themselves "Responsible Students Take Action."

When Paulina and her cohort entered Rindge, they received a new student handbook, covering all of the things the older students wished someone had told them, and they found immediate support in the form of R.S.T.A. student mentors, who had set up a table in the hall to help freshmen with everything from coping with sticky locks on lockers to dealing with hazing.

Impressed by such efforts, staff members have become willing to carve out even more unusual forums for student participation and input. Rindge is probably the only vocational school in America to have its own Innovations Board, with equal membership (and votes) for students and staff. The board was created in late 1991, soon after CityWorks received an Innovations Award from the Ford Foundation. One of ten innovations in state and local government selected nationally from over 1,700 applicants, CityWorks was given \$100,000 to "broaden and deepen" the work.

The staff agreed to set aside one-third of this award to be distributed over three years in small grants to other innovations in the Cambridge Schools that would further the CityWorks mission. The process would be overseen by a board with equal representation of students and staff and several slots reserved for community representatives.

At its first few meetings, the board hammered out a mission statement and a set of priorities. Student members were outspoken in these discussions, insisting, for example, that all proposals be submitted by at least one teacher and one student, and that proposals specify the ways in which students would be involved in carrying out the program.

By the spring, board members were reading and evaluating nearly two dozen proposals from all over the school district. After selecting and interviewing the finalists, the board selected nine winners, with proposals ranging from a new student-run radio program to a special summer school for bilingual students. Questioned by teachers and classmates as to why they did not use more of the money internally for Rindge projects and programs, several students spoke passionately of the need to end the isolation of the vocational program. They want the Innovations Fund to encourage teachers and students throughout the school district to try new ways to join hands and minds. Their hope echoes the note sounded by Paulina at the end of her statement to the school: "We give respect, so we expect respect. Success demands it!"

### ***Bringing Change Out in the Open***

Educators involved in school reform efforts tend to build a protective wall around what they are doing. If they don't, they believe, they might be accused by parents—or even worse, by school board members—of "experimenting with our children." Although it is possible to work in isolation for a while, the only real protection in the long run lies in

convincing key stakeholders of the value, and perhaps the inevitability, of what you are doing.

The changes at Rindge have never been a secret. Staff members and students have made presentations at Parents' Nights, spoken at each of the junior high schools, and hosted hundreds of people at the exhibitions of student work. The interest in CityWorks expressed by the larger community has motivated the staff to make the new program work well and to be able to describe it well to others.

The publicness of what we are doing has caused some local political problems. Speaking for a small but vocal constituency of parents, one school board member accused Rindge of misdirecting working-class students by offering them liberal arts rather than the manual training that they "need." This attack was made through letters to the editor of the local paper, obstruction of even mundane Rindge matters before the school committee, and encouragement of students to leave the district under a state school-choice plan and attend a suburban vocational school. There were requests for state audits in three consecutive years, and one even included an attempt to get the state to decertify our program.

Thus far, such attacks have taken time and energy, but they have also solidified the staff, students, and parents behind the new program. Fortunately, we also receive very positive feedback about what we are doing, both from within the district and around the country. As awareness of the Perkins Act has grown, so have requests to visit our program or to send our teachers out as workshop leaders and presenters. In fact, the requests eventually became so great that we set up our own formal mechanism for handling them: the Hands and Minds Collaborative, funded by the Dewitt Wallace-Readers Digest Foundation and the Mott Foundation, is a joint effort of Rindge and the Center for Law and Education.

Contact with other teachers and other school systems has brought major benefits to our staff. The attitudes, questions, and comments of teachers from other districts become a yardstick against which Rindge teachers can measure the distance they have come, and can reduce the "general physical, social, and educational separation that divorces vocational teachers" from other practitioners (Little 1992, p. 6).

In June 1993, a dozen Rindge teachers served as workshop leaders at a national conference cosponsored by the Center for Law and Education, the Massachusetts Institute of Technology, and the Hands and Minds

Collaborative. It was the job of the workshop leaders to assist the nearly two hundred participants in developing projects that would help them implement the Perkins Act in their own schools. At the last session, after listening to a number of teachers express concerns about the loss of time for trade-specific training, Tom Lividoti, the electrical teacher at Rindge, spoke up: "I used to sound just like that. I was the loudest one complaining about fewer hours in the electrical shop. But what we're doing now brings out creative juices I didn't know kids had; I see developments on the academic end that I never dreamed were possible. I may not be able to turn out second-year apprentice electricians, but I know we are turning out better all-around students."

Academic teachers working with the CityWorks program have also found that they have important messages to share with their colleagues. In spring 1993, Alif Muhammad, the CitySystems teacher, convened a workshop series for Cambridge teachers called "Put the Action Back into Math and Science." Rob Riordan, a member of the Rindge Humanities team, addressed humanities teachers and scholars recently at a national meeting sponsored by the American Council of Learned Societies: "I started the year thinking it was my mission to bring humanities into vocational education. Now I believe we must bring vocational methodologies into the humanities."

### *Dilemmas and Challenges Remain*

When we began to re-create ourselves, we knew that we wanted the school to be democratic in all of its many layers. The relations between administration and staff would be as egalitarian as possible and teachers would enjoy meaningful participation in decision making. The relations between teachers would be democratic: there would be opportunities for teachers to diversify their roles, to team teach, and to have regular common planning time. The relations between teachers and students would be democratic: the teacher would act as coach and advisor rather than as a distant lecturer.

The methodology and curriculum would be democratic: we would not track, and therefore we would have the same high expectations for all students. We would focus our assessment on student-originated projects, not teacher-designed tests. The relationship between the school and the community would be democratic: it would afford opportunities for students to investigate and actively seek to meet real community needs.

Finally, we would also try to make our physical environment—our work spaces—as democratic as possible: we would design and build spaces that further our democratic goals, despite the typical American high school architecture, which reflects the industrial factory model and “gets in the way” of collective work.<sup>4</sup>

But the fundamental conundrum of vocational education remains insufficiently resolved: many still want from vocational education the “no-frills” schooling that they view as suitable for lower income students, while others of us agree with Dewey that it is a vehicle for transforming secondary education and creating schools where all students can be “smart.”

One of the most troubling aspects of our experience at Rindge is the persistent social-class bias that pervades certain community members’ beliefs about who should attend vocational programs and what they should be doing once they are there. One critic noted that the new Rindge is preparing “Renaissance people, not plumbers.” It goes without saying which he preferred for his own daughters, yet he still insisted narrow skills were better for low-income students.

This bias has its roots in the contradictory origins of our school, and it will not fall easily in Cambridge—or elsewhere. Even Dewey, in commenting on this bias, noted with an aggravated sarcasm, “Nothing in the history of education is more touching than to hear some successful leaders denounce as undemocratic the attempt to give all the children at public expense the fuller education which their own children enjoy as a matter of course” (Westbrook 1991, p. 178). At its core, this is what the experiment at Rindge seeks to achieve: to counter the reduction of education to job training (Davis et al. 1989, p. 109) that only “erects more barriers to high-quality education for low-income students” (Rosenstock 1992), and to broaden creative intellectual work for all students.

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<sup>4</sup>Assembly line architecture is supported by assembly line methodologies and curricula. See A. Steinberg, “Beyond the Assembly Line,” *The Harvard Education Letter* 9, 2 (1993): 1.