

HORACE

What's 'Essential' About Learning in the World of Work?

Situating learning in real-world contexts can breathe new life into academic explorations and new rigor into work-related studies. In the process, some of the deepest issues of whole-school change will come to the fore.

ALL DURING THE SPRING OF 1967 I watched boys and the classroom clock, enduring *Moby Dick* and history textbooks while I waited in a virtual coma for my release. Then, at three o'clock, I would cross Highway 41A to a little print shop and work till late at night, side by side with moonlighting soldiers waiting to ship out to Vietnam. And as I got the hang of turning hot lead into type, and type into the words that brought a newspaper to that small Kentucky community, my mind sprang to life, turning over issues of identity and politics, ethics and responsibility that school had never awakened.

In the fall I went on to college, a National Merit Scholar. But thirty years later, that job still shapes my life in ways both pragmatic and profound. The truest and deepest learning I have ever known, it took place *outside of school*, under the tutelage of a wise boss who knew what I could learn from work—not just skills, but a world of new ideas.

Ted Sizer began the Coalition of Essential Schools after his nationwide study of high schools showed him the insidious grip that apathy had on even the "best" of students, in even the most privileged places. That group knows how to use the system to get on to college and careers, but less advantaged students often drop out rather than play the game, when school offers them little hope or inspiration or belief in their own ability to succeed.

Much of the best practice in Essential schools comes, in fact, from efforts to combat the impersonal and superficial high school culture, where adults cannot know kids well enough to guide them and where classroom studies do not presume a genuine need to know.

And many of those efforts—in small schools and large, in urban and rural and suburban settings—are beginning to turn to the "real world" of work outside school to connect students with authentic reasons for learning that will spark their intellectual energies as they did mine, three decades ago.

Vocational programs that once trained "low-ability" students on a narrow track toward blue-collar jobs are now coaching them in the same thoughtful habits of mind expected of college-bound peers.

And academic programs, which long regarded hands-on projects as less rigorous than the disciplines require, are starting to recognize that students do not learn to reason in the abstract, without concrete links to lived experience.

Across old lines of suspicion and disdain, new alliances are forming among Essential school teachers who believe that their school's goals should apply to all students—and that real-world challenges can lend meaning and intellectual focus as diverse groups of students and adults pursue them together.

The Nine Common Principles leap out, in fact, when one looks at

Trying on Work While Trying Out Minds

"The challenge in school-to-work programs," says Adria Steinberg of Jobs for the Future in her new book, *Real Learning, Real Work*, "is to create something that does not look like school, as teenagers now know it, or like work, as most of them experience it." The best work-based learning strategies let students try on different work identities, she concludes, while they learn the concepts, skills, and habits of mind that prepare them for college and careers. Jobs for the Future has identified three complementary strategies, she notes:

Project-Based Learning. Class or individual projects, jointly negotiated by students and teacher, in which students investigate an area of interest to them and importance to the course of study. Work or community partners help provide context and information for the project and attend a culminating exhibition in which students present and exhibit their findings and results.

Work and Learning Projects. As part of a work-based learning experience students complete a project, in which they investigate an important issue connected to their work and make a contribution to the work site. Work-site mentors provide coaching and expert advice from the design stage through the assessment of the project.

Field Studies. These investigations of complex, real-world problems are usually initiated by work or community partners "hiring" students as consultants to study or make recommendations on a specific decision or problem. The partner acts as the "client" to whom students present findings, conclusions, and recommendations.

work-based learning experiences in all their many shapes and forms. Nowhere do students act more as workers, for example, than when they must produce something real with something depending on them.

Teachers may not know a work-based problem as well as they know the textbook; instead, they act as generalists and model the learner's role, coaching and consulting as the student takes new risks.

Issues of decency and responsibility take on new meaning when students find themselves in a world of adults with a new set of norms.

Finally, the work must pass muster in the most authentic of assessments: public exhibitions, with experts in the field vouching for the usefulness and quality of the work.

To reorient teaching and learning to a real-world context takes a shift in the entire system of schooling, from job roles to schedules to assessment. But in a number of important ways—senior projects, service learning, field studies, internships and mentorships, school-based enter-

prise, and theme-based learning communities or "career clusters"—Essential schools of all descriptions are beginning to do that. Situating learning in the vocations or callings of adult life—whether professions or trades, academics or the arts—provides "both magnet to attract and glue to hold," as John Dewey put it.

A Lever for Change

All this is happening against a major backdrop of policy initiatives broadly known as "school-to-work" and supported by large amounts of federal and state funds. In 1991, a report by the Department of Labor Secretary's Commission on Achieving Necessary Skills (SCANS) came up with a highly regarded set of cross-disciplinary learning standards that calls for key thinking skills deemed essential to the labor market. In 1990, Congress passed amendments to the Perkins Act that would broaden vocational education to stress development of cognitive skills rather than narrow job training. And in 1994, the School-to-Work Oppor-

tunities Act gave a boost to state and local efforts to connect the worlds of school and work.

For school people whose attention is trained on big issues of whole school change—the Nine Common Principles and their implications for school design, for example—this policy climate may seem irrelevant, too focused on the vocational sector or on a labor-market rationale for education. Even the term "school-to-work" makes them squirm. (A slew of better-sounding alternatives has thus emerged: "work-based learning," "school-to-career," even "school-to-world.")

But a growing number of Essential school leaders support the school-to-career movement as a key lever for whole-school change.

"Large schools can use career-theme academies as a means of getting to scale," points out Amy Gerstein, the Coalition's new Executive Director. "Smaller schools can work on the Nine Common Principles through senior projects, service learning, mentorships, and the like."



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For a list of back issues or for information about the Coalition, write to CES, Brown University, Box 1969, Providence, RI 02912.

Editor:
Kathleen Cushman

When schools come to terms with the effects of such plans on the whole school's structure and opportunities for learning, work-based learning can be a powerful force for positive change, Gerstein notes. If they do not, they run the risk of reproducing old inequities and divisions. (In a forthcoming joint paper with Jobs for the Future, the Coalition will explore these tensions.)

For a federally funded school-to-work demonstration project called "Changing the Subject: The New Urban High School," the Big Picture company (of Cambridge, Massachusetts and Providence, Rhode Island) chose five sites from among 7,400 urban schools - four of which turned out to be members of CES. Though some are small and some large, all were "changing the context of teaching and learning," Big Picture says, by integrating academic and vocational work

through work-based learning or internships. And all incorporate elements of whole-school change familiar from other Essential school contexts: common planning time for teachers, hands-on pedagogy, common core goals and outcomes across the curriculum, the elimination of tracking, and the expectation that all students will graduate ready to enter a four-year college.

Project-Based Learning

"Not everyone who's doing school-to-work even thinks they are doing it," observes Amy Gerstein. In the Wise Individualized Learning Experience (WISE), for example, high school students in a dozen or more Essential schools are designing projects that link them with adults in their communities for intensive research and work in an area that interests them. Often a capstone of the senior year, the project involves

shared reflection, journal-keeping, weekly mentoring by a teacher, and a final public presentation assessed by a panel of students, teachers, and community members.

Started in 1972 at Woodlands High School in Hartsdale, New York and now coached by retired teachers from a base in White Plains, WISE works equally well with small schools like New York's suburban Croton-Harmon High School, large schools like Pennsylvania's Bellefonte High School, and student populations with special needs, such as alternative schools or the New York School for the Deaf. "I learned more in those weeks than any other time in high school," Croton-Harmon student Erik Ferguson observed.

Whether as a senior experience or earlier, many Essential schools now use projects as a way to increase student engagement with academic work by situating it in a

The Six A's of Designing Projects

Authenticity

- Does the project emanate from a problem or question that has meaning to the student?
- Is it a problem or question that might actually be tackled by an adult at work or in the community?
- Do students create or produce something that has personal or social value, beyond the school setting?

Academic Rigor

- Does the project lead students to acquire and apply knowledge central to one or more discipline or content area?
- Does it challenge students to use methods of inquiry central to one or more discipline (e.g., to think like a scientist)?
- Do students develop higher order thinking skills and habits of mind (searching for evidence, taking different perspectives, and the like)?

Applied Learning

- Are students solving a semi-structured problem (designing a product, improving a system, organizing an event, for instance) that is grounded in a context of life and work beyond the school walls?
- Does the project lead students to acquire and use competencies expected in high-performance work organizations (such as teamwork, appropriate use of technology, problem-solving, communications)?
- Does the work require students to develop organizational and self-management skills?

Active Exploration

- Do students spend significant amounts of time doing field-based work?
- Does the project require students to engage in real investigation, using a variety of methods, media, and sources?
- Are students expected to communicate what they are learning through presentations?

Adult Connections

- Do students have opportunities to meet and observe adults with relevant expertise and experience?
- Does the work of adults become more visible to students?
- Do adults from outside the classroom help students develop a sense of the real-world standards for this type of work?

Assessment Practices

- Do students have opportunities to review exemplars of similar work products?
- Are there clear milestones or products at the completion of each distinct phase of the work, culminating in an exhibition, portfolio, or presentation?
- Do students receive timely feedback on their works in progress and engage in periodic, structured self-assessment using clear project criteria that they have helped to set?

From Adria Steinberg, *Real Learning, Real Work: School-to-Work as High School Reform* (New York: Routledge, 1997).

real-world context. But what distinguishes a thoughtful and rigorous project from one that merely offers another way to fill time? Drawing on Essential School principles as well as the research of Fred Newmann and Gary Wehlage into "authentic student performance," Adria Steinberg of the Boston-based organization Jobs for the Future suggests six criteria teachers can use as they design project-based learning. As well as academic rigor, she says, the best projects have some authentic value or meaning outside of school, and real-world standards by which to assess their quality. (See sidebar, page 3.)

Though the curricular outcomes of a project can be identified up front, the outcomes of the student's learning process—the new insights, skills, and habits gained—are less predictable, observes Bob Pearlman of San Francisco's Autodesk Foundation, which has started a network of school partners to encourage project-based learning. Among other things, for example, projects teach students to manage and allocate time and materials, and they tap kids' inherent drive to learn, their capacity to do important work, and their need to be taken seriously.

Studying in the Field

Finding genuine work for projects often involves simply asking students to look into problems that interest them in their own communities. In Berwick, Maine, for example, Scott Eddleman's tenth-grade science students at Noble High School decided to investigate why algae plagued their favorite swimming hole on a nearby river, Salmon Falls. They conducted organism counts and chemical tests on the river water, visited the sewage treatment plant, and consulted with local water-testing professionals. After five weeks of work they presented their conclusions at a town meeting, along with a proposal for stricter controls on the effluent entering Salmon Falls at the treatment plant.

Students as Workers Facing Real-World Problems

To increase the success of a field study, narrow its scope so that the problem can be addressed completely, suggests Charles Jett, an educational consultant in Wheaton, Illinois. "The level of sophistication of the field study must not be beyond the students' ability to succeed in the process of conducting it," he says. He presents the following examples in a booklet about field studies co-authored with Joe C. McKee:

For a Local Bank: The student team focused on identifying the market for banking services at the high school level. They discovered that while the local bank provided services for small children, the emerging financial needs of teenagers and their access to financial products were largely ignored. The team developed ideas for such services and presented their findings and recommendations to the bank for implementation.

For the City Manager and City Council: The student team surveyed ten communities to determine different approaches used by those communities to fund local historical preservation societies. The team presented their findings and recommendations at a public meeting of the city council.

For a Credit Reporting Agency: The student team investigated the financial impact of the agency's acquiring an "800" number and how that impact would be reflected in an increase of agency member dues.

Many community organizations and businesses can benefit from students carrying out surveys and other projects for them, suggests Charles Jett, an educational consultant in Wheaton, Illinois who advocates such "field studies" as the ideal way to involve students in solving authentic problems. As they define a problem, gather and analyze data, develop conclusions and recommendations, and present the results, he says, students practice higher-order skills while doing work with clear and immediate consequences in the world. (See sidebar.)

The pharmacy store chain CVS, for instance, asked eleventh-grade students at Boston's Fenway Middle College High School to investigate where in the city's Roxbury community the company should locate a new store. In small work teams, students analyzed Roxbury's demographic and economic data, researched information that would affect site decisions and stock, made site visits, projected design costs with the advice of accountants and architects, and presented written and oral reports to CVS executives.

Work and Learning Projects

With the aim of raising the academic sights of minority students, especially in science, Fenway has evolved partnerships not only with CVS but with Boston institutions such as Children's Hospital and the Museum of Science, with the Massachusetts College of Pharmacy and Northeastern University, and with the community college whose facilities it shares. Starting in ninth grade, kids' interdisciplinary academic coursework ties in with problems from the workplace. They might follow the medical progress of a particular patient, exploring the ethical dilemmas that arise in treatment decisions; or they might chart the development of a new medicine from laboratory to pharmacy shelf.

Juniors leave school an hour and a half early from midyear on, to rotate through a variety of positions at their work site; a summer job there also awaits them. Seniors spend part of every day on the job; during the last semester before graduation they step into a full-time five-week internship and complete a research paper on a related topic.

Mentors from each institution supervise students on site, and often volunteer to tutor them in academics.

The payoff in confidence and maturity is evident, Fenway's workplace partners note. "I have watched students develop from nervous teenagers to responsible professionals," says Mary Ellen Harrison, who manages laboratory services for Children's Hospital and who has hired numbers of Fenway students upon graduation.

Fenway is an alternative public school with only a few hundred students, but the same theme-based approach—a meaningful context for students' academic work across the disciplines, a culture where their work matters, and the structure and opportunity for making fruitful decisions about future careers—has won over much larger high schools from South Florida to Chicago to California. By creating "career academies" or "career clusters," they let students move with a smaller cohort of peers and a stable group of teachers through a course of study that centers on a broadly defined area of real-world work. (Typical areas include the arts or humanities, communication and the media, health care, business and finance, industrial and engineering systems, international studies, transportation, and environmental science.)

In these different contexts, students explore and master equivalent sets of intellectual and practical skills. They may apply the analytic methods of different academic disciplines, for example, to the problems of the health care system; or they may study the physics of building an electric car in a team project.

In the process, they acquire a more real sense of the nature of different work roles than casual observation can provide. They come to appreciate how much learning must happen in most work settings. And they develop a network of personal connections to adults in the world of work.

That doesn't mean these young students are making a firm life choice early in their school career, however. "It's just part of learning, not journalism for the rest of their life," says Steve O'Donahue, who

eleven years ago started the Media Academy at Fremont High School in Oakland, California. "At first I was disconcerted; we were hoping to increase the number of journalists who were people of color. But even

Assessing Habits of Mind in a Project or Internship

At Boston's Fenway Middle College High School, students learn early to assess all work against the "PERCS" habits of mind, which (like Central Park East Secondary School's oft-quoted standard) considers how the work demonstrates Perspective, Evidence, Relevance, Connection, and Supposition. In their culminating exhibitions of Senior Projects and work internships, seniors defend their work before an audience that assesses it for those habits using this simple and thoughtful rubric:

Name of Evaluator:
Focus Question / Thesis:

Name of Student:
Internship Site:

Date:

Perspective	Evidence	Relevance	Connection	Supposition
<ul style="list-style-type: none"> • Considers or addresses multiple perspectives • Demonstrates understanding of subtleties and differences among perspectives • Other 	<ul style="list-style-type: none"> • Organizes work in understandable, compelling manner • Shows clear understanding of issues and concepts • Demonstrates ability to research key issues • Other 	<ul style="list-style-type: none"> • Shows importance of key concepts in information to other larger or more specific topics • Demonstrates personal understanding and meaning • Other 	<ul style="list-style-type: none"> • Links concepts and issues with those from other disciplines or subject matter • Shows applicability to other research topics, disciplines, careers • Other 	<ul style="list-style-type: none"> • Speculates or imagines other issues relevant to this topic • Responds to "What if?" questions and changes of circumstance • Other
<input type="checkbox"/> Surpasses <input type="checkbox"/> Meets <input type="checkbox"/> Needs More	<input type="checkbox"/> Surpasses <input type="checkbox"/> Meets <input type="checkbox"/> Needs More	<input type="checkbox"/> Surpasses <input type="checkbox"/> Meets <input type="checkbox"/> Needs More	<input type="checkbox"/> Surpasses <input type="checkbox"/> Meets <input type="checkbox"/> Needs More	<input type="checkbox"/> Surpasses <input type="checkbox"/> Meets <input type="checkbox"/> Needs More

Overall Evaluation:

Surpasses: Distinguished responses. Demonstrates exceptional critical thinking and understanding, answers all questions completely, poses new questions, demonstrates skills and concepts in an exceptional manner.

Meets: Competent Responses. Convincing; demonstrates skills and understanding in almost all regards, makes appropriate connections, answers questions completely, clearly, and effectively.

Needs More. Inadequate responses. Needs improvement in several areas, unclear or incomplete, insufficient demonstration of skills or understanding. Re-do.

Please give other comments and feedback on the back of this sheet.

Helping Workplace Supervisors Coach Habits of Mind

Students at Central Park East Secondary School use five "Habits of Mind" as a framework for class discussions, assignments, exhibitions, group activities, and community inquiry. Now Anne Purdy, who coordinates the weekly community service all students undertake, has drafted a guide that shares those habits with workplace supervisors so they can use them with students on the job. Some excerpts follow, condensed from her original:

1. Connections can make all the difference between doing something in isolation and seeing its relevance to the "big picture." If you need help updating a donor mailing list, for example, let the student know what computer program you are using, the need for donors, the types of benefactors you have, and how the list will be used. Or ask them for ideas for increasing your donor pool.

Note: Always ask how what they are doing relates to what they are learning in school.

2. Perspective. We teach students to search out stories that do not get told, and to consider the viewpoint from which someone approaches a situation. Our older students may be asked to view your organization through the prism of your mission statement, then observe how you might more closely adhere to it.

3. Evidence. Our students are constantly asked how they know what they know. In your conversations, encourage them to expand their thoughts and support their ideas. Don't be satisfied with one-word responses. And don't be startled if they ask you for your evidence as well.

4. Speculation. We ask students to consider how else things might be—different ways of organization, managing a place, spending time efficiently. When you speak with them, ask them for their ideas. They need to know that there is more than one way to accomplish a task and that their feedback matters. If a student says she is bored, for example, ask what other responsibilities she wishes she could have. Ask for her ideas about other things to do.

5. Significance. Students need to see why the projects they work on are important, whether it is a young child's learning, a nonprofit's fundraiser, or a business project. It makes a great impact on a student if his or her effort has contributed to your organization's success.

if kids just signed up because it's a cool thing to do in school, we found that it motivated them in reading and writing, which was our main priority." Still, the program does spark career interests as well. James Black, a former student who arrived "just interested in sports, nothing else," now writes a weekly sports column called "Black and White" for the Charlotte (NC) *Observer*.

Career academies work best when every student chooses a focus in which to develop academic skills with a heterogeneous group of peers. The 2,700 students at Chicago Vocational High School now start ninth grade in a team of 96 students with an interdisciplinary team of academic and vocational teachers,

who will stay with those students through tenth grade. After passing an "initial mastery" exam, they then move into one of seven autonomous academies oriented around career themes such as performing arts or transportation. There they spend junior and senior years with around 225 students and another stable team of teachers.

"It has made a major difference in the culture of the school," says principal Betty Despenza-Green. "Everything has improved dramatically—reading and math test scores, grades, attendance, student behavior, college attendance."

Sometimes the arrangement has unexpected results. Students in the business and finance academy, for

instance, spend half of every week at the airport, coached by one of their academic team who works with United Airlines personnel. "At first United thought the immediate payoff would be some well-trained reservations clerks," says Despenza-Green. "Then most of the students involved began deciding to go on to college instead. Luckily, United recognized the long-term benefits."

When learning takes place off the school site, of course, teachers must adjust their techniques as well. In addition to arranging more than sixteen hours monthly of professional development for all teachers, Despenza-Green has university teacher-educators come to the school to provide intensive coaching for five teachers each semester. "I cannot ask teachers to go work in remote locations without this kind of serious support," she says.

Outsiders who work with students need the same kind of extra preparation. At Central Park East Secondary School, where all students leave school early on Wednesdays for community service projects, service learning coordinator Anne Purdy is working out ways to orient workplace mentors to the habits of mind expected of students. "In the best placements," she says, "students feel that they have an impact, they are asked for their evidence, and they can learn about themselves within a work environment." (See sidebar, this page.)

Service learning projects are sometimes overlooked as an authentic learning context. At Gig Harbor High School near Seattle, students in a popular "service leadership" class analyze community needs and organize volunteer opportunities for their peers. And as in many other Essential schools, Gig Harbor students include a service component in their graduation portfolios.

Assessing Learning at Work

When student learning happens outside the classroom, how should teachers assess it? Projects like the

ones described here rarely fit easily into subject-area boxes. And when academic and vocational teachers collaborate in career clusters, keeping track of the outcomes gets even more complicated. Rather than teasing out subject-area grades from cross-disciplinary learning experiences, many schools prefer to create assessments using their own learning standards.

Some have turned for help to the 1991 SCANS criteria, set out by the U.S. Departments of Labor in its report *What Work Requires of Schools*. Commonsensical and succinct, they rest on five competencies (such as using resources well, or understanding complex relationships) and a three-part foundation of basic skills (such as reading and writing), thinking skills (such as reasoning and problem solving), and personal qualities (such as responsibility).

In Fremont, California, Irvington High School has created a process

and an instrument that both teachers and students use to assess progress against those criteria. Known as BOSS (for Basic Occupational Skills Survey), it boils down to a few key scores, and attaches to student records such as transcripts, portfolios, and resumes. Graduating students with high overall scores will receive special diplomas.

San Diego's Hoover High School also called on SCANS when it named six "learning outcomes" (such as inquiry, technology, organization, and communication) for its exit portfolios. One side of the Hoover transcript lists coursework by semester (with *pass* and *no pass* marks); the other side presents a "portfolio transcript" that assesses each year's work (on a scale from *not ready* to *proficient* or *distinguished*) according to those learning outcomes. The work itself accumulates on computer in "digital portfolios."

Fenway Middle College High

School in Boston assesses student projects and work-based presentations in a simple rubric using the school's essential "habits of mind." (See sidebar, page 5.) Other schools assess work-based learning via portfolios that include reflective writing, samples of student work, letters of recommendation, and even résumés. (See sidebar, this page.)

What Research Shows

Research by cognitive psychologists such as Allan Collins, John Seely Brown, James Greeno, and Lauren Resnick has already established that learning increases when situated in a context that lends it meaning and motivation. And when students first learn something in the context of genuine problem-solving tasks, the research of John Bransford and others shows, they will call the knowledge up more easily later to solve other problems.

As Essential schools try new

Portfolio Assessment of a Work-Based Learning Experience

Portfolio assessment can be used not only to assess traditional academic work but also to demonstrate student mastery in work-based learning experiences. A model "career preparation portfolio," comparable to that in an academic field, might include the following elements, suggests Daniel McLaughlin at WestEd, the U. S. Department of Education's West Coast regional educational laboratory:

Personal Statement. Students outline their career goals and evaluate their skills in relation to the Career Preparation Standards [also available from WestEd].

Resume. Students prepare a one-page resume describing their experiences and skills.

Application. Students obtain and complete an application for employment or continued education or training.

Letter of Recommendation. Students obtain a letter of recommendation from someone who knows them well, such as a supervisor, community leader, or teacher.

Work Samples. These pieces of student work demonstrating students' mastery of the Career Preparation Standards can range from a science experiment to organizing a school or community event to a statistical analysis of a school-wide survey. One work sample must address technology literacy (such as desktop publishing, graphics, CAD, spread sheets, databases, and use of advanced equipment).

Writing Sample. The writing sample demonstrates stu-

dents' ability to reach a conclusion based on supporting information and evidence. Students are evaluated on their writing ability and analytical reasoning. Writing samples can range from a comparative analysis of short stories to a business proposal.

Interpersonal Skills Evaluation. This evaluation of students' interpersonal skills (team work, leadership, etc.) is completed by a supervisor or teacher after a work experience, team project, or class. Students are strongly encouraged to obtain it from someone outside the classroom (such as an employer, community project coordinator, or coach).

Optional Components. In an additional section in their portfolio students may include any of the following: attendance records; transcript with GPA; extra-curricular activities, certificates, and awards; or cover letter (designed to accompany applications). Students will not be evaluated on these optional components.

WestEd developed the above in partnership with the California Department of Education and the Office of Educational Research and Improvement, and with the help of employers and educators. Several components derive from the Career-Technical Assessment Program (C-TAP). For more information, contact Daniel McLaughlin at WestEd, 730 Harrison Street, San Francisco, CA 94107-1242. Tel.: (415) 241-2720; e-mail: dmclaug@wested.org.

designs to make that kind of learning happen, researchers are watching their efforts bear fruit. The first results from a long-term look at career academies by the Manpower Demonstration Research Corporation recently showed that such programs attract and keep students from the top to the bottom of the class; that teachers are more collegial and involved in learning than their peers; and that teacher-student relationships are more personal.

A 1994 report to Congress from the National Assessment of Vocational Education, as well as studies from the National Center for Research in Vocational Education, also supports Essential school beliefs that all high school students can develop cognitive skills to a high standard, and that learning in a real-world context serves students of every academic description.

The old inequities of a highly stratified school system still plague such programs. But as all kinds of Essential schools and students begin to root rigorous learning in the world of work, schools will look quite different from the way they once did. Fanned by students' genuine need to know, the sparks of learning may well fly more freely both in and out of school. □

Some Useful Resources On Work-Based Learning

American Youth Policy Forum has publications for educators interested in youth development and school-to-work issues. 1001 Connecticut Ave. NW, Suite 719, Washington, DC 20036; (202) 775-9731.

Changing the Subject: The New Urban High School is a demonstration project of the Big Picture company and the U.S. Department of Education. 118 Magazine Street, Cambridge, MA 02139; (617) 492-3133; www.bpic.org.

Jobs for the Future works nationally with schools, districts, and communities to design, create, and assess school-to-career learning. 1 Bowdoin Sq., Boston, MA 02114; (617-742-5995).

Manpower Demonstration Research Corporation designs and tests education- and employment-related programs for disadvantaged youth. 3 Park Ave., New York, NY 10016; (212) 532-3200.

National Academy Foundation in New York networks over 170 career academy programs nationwide. 235 Park Avenue S., 7th floor, New York, NY 10003; (212) 420-8400.

National Center for Research in Vocational Education, 2030 Addison St., Suite 500, Berkeley, CA 94720;

(800) 762-4093.

New Ways Workers acts as a national broker for school districts, community organizations, businesses, and other groups to provide work-based educational experiences for students. 785 Market St., #950, San Francisco, CA 94103; (415) 995-9860.

Project-Based Learning Network connects educators interested in project-based learning, school-to-career initiatives, and education reform. Autodesk Foundation, 111 McInnis Parkway, San Rafael, CA 94903; (415) 507-5664.

Northwest Regional Educational Laboratory has fine materials from its Education and Work program, Integrated Workplace Learning Project, and more. 101 S.W. Main, Suite 500, Portland, Oregon 97204; (503) 275-9500 or (800) 547-6339; e-mail: info@nwrel.org; Web: www.nwrel.org/

Wise Individualized Senior Experience (WISE) Services helps schools organize project-based learning as transition to life beyond high school. Contact Vic Leviatin, 29 Old Tarrytown Road, White Plains, NY 10603; (914) 428-1968.

Working to Learn, a project of TERC Communications, develops curriculum materials and runs workshops to strengthen the quality of work-based learning. 2067 Massachusetts Ave., Cambridge, MA 02140; (617) 547-0430.



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