

CHANGING WORK, CHANGING LEARNING: THE IMPERATIVE FOR TEACHER LEARNING IN WORKPLACES AND COMMUNITIES

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INTRODUCTION

As the U.S. educational reform movement expands, students at all levels have greater access to work-based and service learning opportunities, enabling them to experience first-hand the new economy and the world beyond school. These experiences help students to understand the relevance and use of mathematics, writing, and other academic subjects, to explore career options, to develop work habits and attitudes, and to prepare for continuous, lifelong learning. Whether bound for the workplace or further postsecondary education, students in secondary schools need these skills to be successful in both careers and college. Yet most teachers have had little or no recent exposure to the workplace's changing practices, including important new skills such as self-directed work teams and computer-aided design systems which are commonplace in the new economy. As they currently implemented in most schools, staff development programs provide teachers with only five or six days each year of professional growth opportunities, with much of that time spent in "hit and run" workshops.¹

This brief makes the case that all teachers, counselors, and administrators in America's schools and colleges need experientially based, continuous learning opportunities if they are to optimize learning, career development, and school-to-work transition outcomes for their students. As students prepare to enter the workplace of the 21st century, it is imperative that their teachers' level of expertise surpasses the knowledge base they acquired during teacher preparation programs, which likely did not reflect the new models and modes of learning. Over the next decade, local schools, state education boards

and agencies, and universities will be deeply involved in improving teacher learning. The National Commission on Teaching and America's Future argues that, by 2006, the nation should ensure that "all teachers have access to high-quality professional development and regular time for collegial work and planning." Similar goals and standards have been posited recently by the President, the Congress, and numerous blue-ribbon commissions and national organizations. The message from recent research, national commissions, and educational reform collaboratives is this: *Teacher learning in workplace and community settings is essential in professional development systems and programs that aim to provide authentic learning experiences for students beyond the school setting.*

In this brief, we will:

- summarize evidence of work-based learning's value for all students
- describe national initiatives supporting experiential or work-based teacher learning
- outline some practical reasons for teachers and administrators to invest in teacher internships, shadowing experiences, business-led institutes for educators, and similar professional development activities.

LEARNING AT WORK: MAKING THE CASE

Most critics of school-to-work reforms argue that workplaces offer little or no opportunity to learn

valuable skills, and that they in fact track students into low-level technical jobs with little room for advancement. However, recent studies of work-based learning programs point to several valuable academic and postsecondary education outcomes. Schools in which internships, youth apprenticeships, and cooperative education form a core element of the curriculum report increasingly high rates of enrollment in both two-year and four-year postsecondary education institutions. For example:

- The 1995 and 1996 graduates from Wisconsin's youth apprenticeship programs² report that this two-year program with 900 hours of worksite learning provides valuable insights for their career and postsecondary education plans. Within one year of high school graduation, seventy-three to seventy-five percent indicate enrollment in either a two-year college or a four-year college or university after completing intensive high school programs such as finance, graphic communications/ printing, biotechnology, or health services. In comparison, data from the U.S. Bureau of the Census³ reveal that in 1991 twenty-three percent of high school graduates attended two-year institutions, while thirty-nine percent are enrolled in baccalaureate programs. These data suggest clearly that youth apprentices are just as likely as other students to attend college.
- Several of the New American High Schools (1996)⁴ cited by the U.S. Department of Education for innovative designs for connecting school, workplace, and community learning experiences have their students heavily recruited by colleges and universities. In 1996, for example, seventy-two percent of the graduates of the Chicago High School

for Agricultural Sciences enrolled four-year institutions. At Fenway Middle College High School in Boston, where all seniors complete a six-week full-time internship with one of the school's business partners, eighty percent of the graduates attend college, compared to sixty percent of the graduates city-wide.

School-to-Work for the College Bound, a recent NCRVE publication by Tom Bailey and Donna Merritt (1997), provides an excellent synthesis of several relevant studies. Recent studies of significantly reformed schools indicate that high-quality learning experiences frequently take students into the workplace or community. Newmann and Wehlage (1995) examined twenty-four reformed schools over two years and found that several teaching and learning situations in these schools were designed to help students:

- construct knowledge (i.e., they acquire, organize, evaluate or interpret information),
- conduct disciplined inquiry (i.e., they gather in-depth information to solve complicated problems), and
- “see the value beyond school” of their learning (i.e., their learning experiences provide utilitarian, aesthetic, or personal value to others in the community).

To demonstrate the value of learning beyond high school, it is imperative that teachers be familiar with the various workplace and community settings in which students will function as citizens, family members, and workers. When they examined the “authentic” learning experiences and student achievement in these selected schools, researchers found that authentic teaching had two important benefits: it increases student achievement, and it contributes to a more equitable distribution of achievement among diverse groups of students within schools. This study suggests that schools are able to increase and equalize student achievement for **all**

students when the community and its workplaces help enrich and deepen students' learning experience.

Findings from studies and evaluations of work-based learning programs reveal some striking parallels. In Flint Michigan, where 11th and 12th grade students have integrated school and work-based learning experiences at General Motors, graduates of the Manufacturing Technology Partnership had higher grades and class rank and dramatically reduced absences, compared with a group of similar non-participating students.⁵ Graduates of California's Career Academies were just as likely to attend college as students in a control group, even though they worked more hours during high school than students in the control group. Other studies examining the effects of working in high school indicate that students who work a moderate number of hours per week perform better academically than those who do not work at all. However, students who work a higher number of hours per week do less well academically and obtain less postsecondary education.⁶ Finally, the effects of work-based learning are also quite powerful for students with disabilities, and perhaps for other at-risk students. In a recent national longitudinal study,⁷ students with learning and other disabilities who were enrolled in regular classes, who concentrated in vocational education with related work experience, and who graduated from high school had significantly better earnings and a greater likelihood of pursuing postsecondary education than did students with disabilities who received an "academic only" high school experience.

Since eighty percent of high school seniors work for pay during their last year in high school (and seventy-seven percent of postsecondary students work while pursuing their college studies), working and schooling are increasingly commonplace for most young adults in our society. Policy-makers, employers, and educators must realize that the opportunities to maximize learning through work are significant, yet vastly underdeveloped.

The new content and performance standards being developed by states and national associations, such as the National Council of Teachers of Mathematics,⁸ frequently reflect workplace applications and the use of knowledge in the world beyond school. Using mathematics to "solve real-world problems" is a primary goal of the new mathematics standards. Some of the specific standards from the Mathematics Education Standards which lend themselves to workplace learning are presented in Figure A.

As high schools develop and implement more work-based learning programs which involve the community, considerable evidence supporting these developments is emerging. The early evidence from

FIGURE A. SELECTED MATHEMATICS STANDARDS WITH WORKPLACE APPLICATIONS

Mathematics (9–12)

- Apply the process of mathematical modeling to a real-world problem—
(use of mathematics-based computer-aided design systems to design streets and utilities installations for a new subdivision.)
 - Mathematics as communication—
(nine robots are to perform various tasks at fixed positions on an assembly line. Each must obtain parts from a single supply bin located along the assembly line. Students are asked to investigate where the bin should be located so that the total distance traveled by all of the robots is minimal (p. 141).

several studies of high schools using work-based learning suggests that students are doing well academically, are enrolling in postsecondary education at rates comparable to other students, and that students from diverse economic and learning backgrounds all benefit from work-based learning.

EXPERIENTIAL TEACHER LEARNING: AN EMERGING NATIONAL AGENDA

Expanded experiential learning for educators is a key component of several educational reform efforts. The new standards for certifying beginning and advanced teachers clearly suggest that teachers' knowledge about and experience in settings beyond the classroom is critical to successful teaching. Also, it is important to note that the leading school-to-work programs have included extensive staff development programs which place teachers in workplaces and postsecondary institutions to examine new learning demands.

NEW TEACHING STANDARDS ENCOURAGE CONNECTIONS TO WORK

The standards movement is also influencing teacher preparation and licensing. Since 1992, the Council of Chief State School Officers has worked extensively with nearly thirty states in developing model standards for states to adopt or adapt as they move toward performance-based credentialing of teachers. Three of the ten principles (see Figure B) express the essence of what beginning teachers should know and be able to do relative to the interaction between community, school, and workplaces. These standards confirm the importance of teachers' knowledge of community resources, and their use of these resources in planning and constructing curriculum and delivering instruction. Principle 9 also refers to the critical role that workplace and community experiences can play in developing reflective practice. A "reflective educator" continuously uses the community, business leaders, parents, students and former students to assess the net effects of school-to-work initiatives, as well as other educational efforts and programs. With this

information in hand, educators can systematically develop new curriculums, provide better career counseling, design appropriate teacher internship programs, or launch any of several necessary school-community partnership improvements.

The National Board for Professional Teaching Standards (NBPTS) is establishing standards for what accomplished teachers should know and be able to

FIGURE B. STANDARDS/PRINCIPLES FOR BEGINNING TEACHERS, COUNCIL OF CHIEF STATE SCHOOL OFFICERS

- Principle #7: The teacher plans instruction based upon knowledge of subject matter, students, the community, and curriculum goals.
- Principle #9: The teacher is a reflective practitioner who continually evaluates the effects of his/her choices and actions on others (students, parents, and other professionals in the learning community) and who actively seeks out opportunities to grow professionally.
- Principle #10: The teacher fosters relationships with school colleagues, parents, and agencies in the larger community to support students' learning and well-being.

do. The Board has developed a system of advanced, voluntary certification for experienced teachers interested in assuming leadership roles within their fields of instruction. Over the next few years, the Board will offer certificates in eleven areas of instruction for adolescents and young adults (including one in Vocational Education by 1999). Currently, five certificates are available. One of the five core standards

for *all certificates* of accomplished teaching notes that teachers are members of learning communities, and thus must be engaged in:

. . . contributing to the effectiveness of the school by collaborating with other professionals on instructional policy, curriculum development and staff development. . . . They are knowledgeable about specialized school and community resources available for their students' benefit, and are skilled at employing such resources as needed.

PROFESSIONAL DEVELOPMENT: A CRITICAL ELEMENT IN IMPLEMENTING SCHOOL-TO-WORK

The central importance of professional development opportunities has been confirmed by recent studies of school-to-work programs selected because of their success in improving students' academic achievement and their transition to work and college. Two of the New American High Schools listed earlier (Chicago High School for Agricultural Sciences and the Fenway Middle College High School in Boston) regularly provide their faculty with opportunities for summer internships in local businesses and in research laboratories at nearby universities. At Fenway, faculty and staff annually identify and address a set of school-wide professional development goals, that are integral to improving student learning. The current goals focus on developing processes for documenting graduation standards via portfolios and providing diversity training. Substantial blocks of time are allocated for staff development, including a midyear, two-day retreat (held Friday–Saturday), extended contracts for teachers (the equivalent of 10 early-release days spread throughout the year), and a weekly, ninety-minute faculty meeting. The early-release days are used to address the curriculum and instructional needs of content teams (math, science, humanities) and the School-to-Work houses.

High schools belonging to the High Schools that Work consortium, led by the Southern Regional Education Board, regularly compile achievement data on sophomores and seniors in English, science, and mathematics. These schools' goals clearly focus on raising the achievement levels of career-bound students by integrating vocational-technical subjects with related science, mathematics, communication, and problem-solving skills. A recent study of high schools registering the largest gains in student achievement from 1993 to 1996 (when controlling for other key factors, such as changes in the student population) noted that a "focused professional development program" formed a core component of the school improvement plan at most of the seven high schools. In these schools, staff development programs for teachers featured opportunities to observe and interview staff in local businesses, to develop industry-led academy programs (such as the Ford Academy for Manufacturing Sciences) which included staff development, and to participate in workshops focused on linking academic and vocational-technical courses.⁹

Professional development has been a key component in developing, expanding, and sustaining several of the leading School-to-Work model programs. Since 1994, the Manpower Development Research Corporation (MDRC) has been following the progress of 16 local "pioneering" case study sites in 12 states. While examining career academies, youth apprenticeship programs, occupational-academic cluster programs, and tech prep programs, the corporation concluded that extensive use of innovative forms of professional development was central to launching these efforts.¹⁰ As these leading sites have continued to expand by adding new relationships with employers and secondary schools, staff members report that ongoing professional development is vital. Seminars, common planning times, and other opportunities for educators to learn about school-to-work reforms help to reduce isolation between

teachers and introduce new educators to the program. Additionally, professional development is an essential vehicle for assessing the strengths and weaknesses of the program, as well as continuously improving the program and propelling it forward.¹¹

Several studies have argued that schools should adopt a substantially different approach to professional development and teacher learning. A business-sector orientation is helpful in reconsidering professional development. Economists Murnane and Levy¹² argue that teachers and their colleagues must receive a level of training and support to pursue solutions to educational and learning challenges effectively—in the same way that frontline workers in high-performance work settings are presented with incentives, opportunities, and training enabling them to solve production problems in manufacturing. The report of the National Academy of Education on Standards-Based Education Reform¹³ notes “that moving forward with standards-based education reform requires both more and different opportunities for educators’ professional development” (p. 66). To overcome the traditional view of teaching as delivering discrete content and information, educators need continuous professional learning, enabling them to experience how information is used to solve complex problems in the real world by integrating knowledge, concepts, strategies, and skills from a variety of disciplines. To enable their students to engage in learning that integrates technical and academic content, educators must have access to workplace and community settings where these learning experiences and opportunities can be grounded, observed, and fully engaged by both learners and teachers.

INVESTING IN EXPERIENTIAL TEACHER LEARNING

The experiences of several schools and communities that have used professional development to strengthen educational reform efforts, including school-to-work/career reforms, suggest that educators’ workplace

learning has multiple benefits for schools, students, and businesses.¹⁴ As noted in Figure C, teacher summer internship programs and similar activities promote improved school and community relations. Teacher externships also help teachers collect examples of realistic or real-world problems that provide students with the opportunity to acquire a deep understanding of where and how key concepts are used in various situations beyond school. For

FIGURE C. KEY TEACHER REPORTED BENEFITS FROM WORKPLACE PROFESSIONAL LEARNING

- Enhancing school-community relations.
- Locating real-world problems and illustrations of academics in the workplace.
- Developing insights on performance assessment strategies
- Responding to community economic development needs
- Affirming and expanding teacher’s views of the value of their knowledge and contributions
- Developing a clear understanding of the culture of work and community setting and their differences with educational cultures
- Updating technical knowledge and expertise
- Identifying career pathways or clusters that align with student interests and economic needs
- Identifying new approaches and strategies supporting continuous improvement in schools.
- Identifying mentoring resources for students
- Identifying workplace accommodations for individuals with disabilities

example, illustrations of how statistics and probability theory are used to address problems in manufacturing quality control processes can be illustrated in mathematics, industrial technology, and other courses. By observing self-directed work teams in a hospital setting and developing case studies, educators can identify new teaming arrangements that might be used in their classes. Case studies of teams in their business contexts can be used to illustrate the psychological and sociological dynamics of teams, as well as the importance of understanding cultural and individual differences. By spending mini-sabbaticals in local community and business settings, counselors and teachers can identify the emerging economic opportunities and provide students with more informed career planning. Working with local business-education partnerships, special educators can identify mentors and special work-based or community service experiences for at-risk students. Businesses that employ individuals with disabilities can provide excellent examples of accommodations being made for individuals with physical or learning disabilities in computerized workstations. The list of learning experiences available beyond school and their value to educators is extensive, but two major observations are crucial. First, educators who look beyond the school setting in their professional development gather a renewed sense of the importance of their role as educators. They understand how employers can benefit or be placed “at risk” based on what students learn in their classrooms. Educators find it reassuring to discover that knowledge and learning capacities are indeed a vital concern in today’s workplace. Second, as noted above, educators from the elementary to the college classroom can benefit from these experiences. However, each educator will gain different insights from the experience, and each will use it in different ways in curriculum frameworks, instruction, assessment, and career guidance activities with students. Educators’ workplace learning is a powerful tool and an important resource for supporting continuous educational improvement at all levels.

RETHINKING PROFESSIONAL DEVELOPMENT FOR ALL EDUCATORS

The central premises of educators’ workplace learning and school-to-work reforms also converge to suggest ways to make general improvements in professional development in education. Expanding experiential learning for educators is, in many ways, analogous to business’ rising investment in learning for all the organization’s employees, rather than focusing primarily on managerial education and training. Recently, the U.S. Department of Education (ED) and the National Staff Development Council (NSDC) have each issued standards and guiding principles for high quality professional development programs. The ED principles envision high quality professional development as:

... requiring partnerships among schools, higher education institutions and other appropriate entities to promote inclusive learning communities of everyone who impacts students and their learning. Those within and outside schools need to work together to bring to bear the ideas, commitment and other resources that will be necessary to address important and complex educational issues in a variety of settings and for a diverse student body.

The NSDC has specified standards for staff development programs in high schools that emphasize the following:

- Effective high school staff development requires knowledge and use of the stages of group development to build effective, productive, collegial teams.
- Effective high school staff development prepares educators to combine academic student learning goals with service to the community.

- Effective high school staff development increases administrators' and teachers' ability to provide guidance and advisement to adolescents.

These standards for professional development programs emphasize experiential learning for educators. Beyond ensuring that appropriate content and knowledge is integrated into the curriculum, these standards articulate how schools can be restructured so that they become high-performance learning environments for teachers as well as students. One way to ensure that schools are engaged in continuous improvement is to provide opportunities for educators to view other organizations, such as high-performance workplaces in their communities, to review and consider their approach to assessments of employee performance or teaching new technologies to front-line workers. When it is undertaken in high-performance businesses, teachers' experiential learning can reveal a wide variety of insights about restructuring and reforming schools as learning organizations, as well as directly improving curriculum and learning experiences for students.

CONCLUSIONS

The case for expanding the scope and extent of teachers' workplace learning is driven by new evidence that students' academic achievement is advanced by work-based learning experiences. Since many of today's teachers have lacked opportunities to understand the qualities and richness of learning outside of school, a substantial national effort is emerging to support educators' workplace learning. The emerging national agenda is characterized by new professional preparation standards and insights about educators' workplace learning, and its central importance to launching new school-to-work designs within schools and community colleges. New standards for certifying both beginning and accomplished teachers emphasize the critical connections that educators must have with employers,

community leaders, and local government agencies if students are to leave high school with the ability and capacity to apply their learning to real-world situations. Evidence from the nation's leading examples of high-quality school-to-work programs places professional development and teachers' connections to workplaces and employers as a key foundation for program development and implementation. In one study, seven high schools with significant gains in student academic achievement have used "focused professional development programs" extensively in the past three years.

Finally, investments in educators' workplace learning affords teachers from various settings a wide range of learning opportunities. These investments yield new insights for teachers about the value of their teaching, both to students as well as the larger community. The work- and community-based learning experiences provide educators with fresh perspectives on the role of academics in the real world, as well as teamwork, problem solving, cultural and individual diversity, and other important phenomena related to school-based learning. Additionally, examining the means by which business and community-based organizations rely on continuous learning provides administrators, teacher organizations, and policy-makers with useful models for transforming professional development. As is the case in many business and governmental organizations, employee education practices that are aligned with mission and productivity goals are imperative in efforts to develop a capacity for continuous improvement within the organization.

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