

Work-Based Learning: Student Perspectives on Quality and Links to School

Cathleen Stasz and Dominic J. Brewer

RAND

Programs that incorporate work-based learning (WBL) experiences in connection with school activities are proliferating, yet we know very little about their quality as learning experiences for young people or the costs associated with participating in them. This article examines two programs operating in the same school district, where students receive course credit for participating in WBL. One program provides unpaid internships each year of high school; the other provides paid work experience for one semester. We contrast the kinds of learning opportunities each offers to students, as measured by a student survey and a case study of program operations. We focus on two issues: the quality of students' work experiences in these programs and the relationship between program participation and school learning, including effects on school work and social experiences. We find that students perceive the quality of their work experiences to be very similar across the programs despite differences in the type of work involved and in several structural features of the programs. We find that both programs have weaknesses in establishing connections between school and work and that the number of hours students work negatively affects some aspects of school performance, such as having time to do homework and the desire to stay in school. Our findings raise questions about the value added of WBL, given costs associated with the program design and delivery and, in some cases, with participation.

Work-based learning—learning that is planned to contribute to the intellectual and career development of high school and community college students—typically include a WBL component; these new programs join a variety of existing initiatives that utilize WBL, such as cooperative education, career academies, and youth apprenticeships. However, despite the proliferation of WBL programs, very little is known about their quality and effectiveness or how they compare with regular youth jobs that are unconnected to school (U.S. Congress, Office of Technology Assessment, 1995). Similarly, little research has addressed the experiences of students in WBL and the ways these contribute to, or hinder, students' intellectual or occupational development (Stern, Hopkins, Stone, & McMillion, 1990; Stone, Stern, Hopkins, & McMillion, 1990).

In this article, we present some new evidence drawn from a study of different types of WBL programs for high school students operating in a large metropolitan area. We focus on two programs: (a)

a medical magnet high school (MMHS) that provides unpaid internships each year of high school and (b) a work experience program (WEP) that provides paid work experience for one semester. We contrast the kinds of learning opportunities each offers to students, as measured by a survey of student participants and by in-depth case studies of program operation, and describe the features of each program that support WBL. We then focus on two important issues. First, we analyze student perceptions of the quality of their work experiences. Second, we examine student perceptions of the linkages between their WBL program and schooling, including the effects on learning and social experiences. While previous studies of WBL programs have focused on employment outcomes for students (e.g., Stern et al., 1997), we are more interested in other outcomes, such as the extent to which students believe their participation in WBL affects or conflicts with their school performance, makes use of their skills, and promotes learning about careers

or work skills (e.g., working in teams). We present various statistical analyses of student survey items to compare and contrast the programs and integrate our qualitative case study data into our discussion.

Despite a contrast in the type of work done by students in each program and in several structural features of program design, we find that the students perceive the quality of their work experiences to be very similar across programs. On the other hand, there is a marked difference between the two programs in the perceived links to school. In the paid internships, where students are working a large number of hours, there is some evidence of negative effects on students. For example, they have less time to do homework and are more likely to want to quit school. Both programs have only weak mechanisms for linking school and work, which raises questions about the value-added assumptions behind WBL.

Background and Approach

School programs that incorporate WBL come in many variants, but have the common goal of providing participants with some experience in the world of work. It is believed that hands-on workplace experience will provide students with opportunities to learn work-related skills and attitudes they could not otherwise acquire in a classroom. In addition, WBL may increase their prospects for future gainful employment (Stern et al., 1997). What actually happens at the work site in terms of the type of work performed and the way the program is structured to promote links between school and work are crucial aspects of ensuring a WBL program meets its goals. Hence, in this article, we are primarily interested in two broad questions: (a) In what ways and to what extent does WBL provide students with quality opportunities to learn about work? And (b) in what ways and to what extent do WBL activities link to, or conflict with, schooling? Before describing our data, we briefly discuss some pertinent background literature that provides a framework for examining these two questions.

Assessing Work Quality

Previous research on work, job characteristics, and human development provides a conceptual framework for examining the quality of work experiences provided by WBL programs. Kohn and Schooler (1978) defined “substantive complexity” as one indicator of job quality, which they defined

as the complexity of reading and writing required, working with one’s hands, and dealing with people. Stern and his colleagues (1990) expanded this construct to include cognitive complexity (e.g., use of reading, math, and writing on the job), mental challenge, physical challenge, and opportunity to develop work-related social competence. The development of work-social competence is important because it is related to a person’s capacity to perform successfully at work (Mainquist & Eichorn, 1989). WBL quality, then, can be assessed by looking at specific job characteristics.

A previous study of cooperative education in high schools and community colleges developed student survey items to assess the nature of work experiences (Stern et al., 1990; Stone et al., 1990). This study identified several relationships between job quality and students’ orientation toward work. Opportunity to learn and physical challenge are positively related to students’ motivation to do good work. Students who report less conflict between school and their jobs express more motivation and less cynicism about work (Stern et al., 1990). Compared with students in nonsupervised work experiences (i.e., regular youth jobs), students in supervised work experiences appear to have higher-quality jobs, where students make greater use of academic skills, have more contact with adults, and have opportunities to learn problem-solving and responsibility (Stone et al., 1990).

Assessing Links to School

In addition to work quality, WBL should relate to and enhance school learning. Otherwise students can presumably gain valuable work-related skills and attitudes working in any youth job. Because these jobs are plentiful on average—in 1992, 80% of high school seniors worked for pay outside of school—there would be no need to develop and deliver programs that provide WBL unless they add value to schooling (U.S. Department of Education, 1992).¹ In considering the relationship between WBL and school, two factors are relevant. On one hand, if WBL is a time-intensive activity, it is possible that students’ academic performance may suffer; they may have less time to do homework, may be tired or late for class, may take fewer courses, and may have lower grades (Greenberger & Steinberg, 1986; Stone et al., 1990). On the other hand, WBL may have positive effects on school by providing students with a context for understanding how skills learned in school are useful and im-

portant in work. This understanding might enhance school learning, if students are given the opportunity to apply “academic” skills on the job or vice versa. WBL might engage students who are otherwise uninterested in school and motivate them to stay in school. WBL may provide important information about jobs and careers that students cannot otherwise obtain, which can, in turn, affect their courses of study and decisions to pursue higher education.²

The structure of a WBL program has important implications for both work quality and the links between school and work. When students engage in WBL, the learning opportunities afforded to them are primarily defined by the characteristics of the work and workplaces. Teachers or educators involved in these programs must collaborate with individuals at the work site to help ensure that students’ experiences are productive and worthwhile and that students are not being exploited. In order for WBL to be educationally beneficial and to enhance or complement school-based learning—two primary reasons for offering WBL in the first place—the school and work site must coordinate program design and delivery in detail. Previous studies show that a coordinated effort enhances the use of academic skills on the job, promotes better quality supervision, and provides work experience that is both more challenging and more meaningful (Stone et al., 1990). Stern et al. (1997) conclude that a more challenging experience that offers the opportunity to learn and makes greater use of the students’ skills is a significant determining factor of student attitudes toward work. The degree of coordination between school-based and work-based learning can be assessed by considering the presence or absence of several desirable features, including: a written training agreement, a written training plan, supervision of students’ work placement by teachers or program staff, release time for teachers to visit students on site, teachers or program coordinators having responsibility for finding placements, and class grade depending on the achievement of work objectives (Stern, 1991).

Methods, Data, and Overview of the Programs

In this article, we report analyses of two contrasting WBL programs for high school students.³ Our findings are based on in-depth case studies of these programs, which included interviews with program staff and a student survey based on the

instrument developed by Stern et al. (1990). While a self-report survey has limitations for assessing WBL quality—particularly the social context of work in which learning takes place—it is a useful way to gather systematic data from participating students where very little information currently exists. While our survey is adapted from previous work, our study differs by explicitly examining program-level variations in WBL and by incorporating qualitative data from the individual case studies. In this way, we can attempt to see whether program design affects the work quality and links to school as perceived by participating students. Our primary purpose here, then, is to compare explicitly forms of WBL. However, although we did not collect data from students in regular (non-WBL) jobs, we also make inferences about both of our programs relative to this alternative, based on previous research.

Survey

The student survey consisted of 50 primarily closed-choice items. It was administered in groups and took approximately 30 to 45 minutes to complete. The items covered students’ background (sex, age, grade, ethnicity, language spoken at home), general feelings about school, higher education and career aspirations, previous and current work experience outside of school-sponsored work, and work experience associated with the particular program. The latter category included detailed questions about the nature of WBL, including skills used and learned on the job, training and supervision, and relationships between school and work.

Active parental consent was obtained for students to complete the anonymous survey during spring semester 1996. The consent requirement necessarily reduced the response rate, as students had to take forms home to obtain a parent’s signature and return them to school. Survey data are available for 55 juniors and seniors in the medical magnet high school (about one third of students enrolled in those grades) and for 44 juniors and seniors in the Work Experience Program (which had about 55 students enrolled during that semester).⁴ (Although these samples are modest, it is important to realize that WBL programs are typically small, so it is not feasible to conduct studies of larger numbers of students, which would permit program comparisons.)

Interviews and Documentation

To gather information about the design and de-

livery of the programs, we interviewed program staff and school personnel connected to the program and selected employers and workplace supervisors or mentors. All respondents were asked general questions about program goals and perceived student outcomes and specific questions tailored to their roles and responsibilities in each program. Interviews were confidential and lasted approximately one hour. At WEP, we interviewed the program manager, program coordinator, two teachers, a school counselor, and two employers who provided work for participating students. At MMHS, we interviewed the school principal, program coordinator, two employers, and a work-site mentor. We also learned about the program by gathering and studying various documents, such as program descriptions, guidelines and criteria for participation, mentor guides, training contracts, student evaluation forms, and the like.

Program Overview

The two programs discussed in this article operate in the same large metropolitan school district and serve similar populations of students. The first program, in a medical magnet high school (MMHS),⁵ provides unpaid internships in a variety of medical settings. The school emphasizes a college-preparatory curriculum for grade 10–12 students, with internships primarily provided for the purpose of career exploration. Tenth-grade students rotate in several placements for one morning a week throughout the school year. Juniors and seniors work one morning per week in one or two settings for the year; some students are hired to work in the summer as well. Students receive elective course credit for their internships.

The work experience program (WEP) loosely follows the cooperative education program model

and is a partnership between the school district and a large multinational company. WEP provides paid work experience and course credit for program participants drawn from eight urban high schools in the same district. Students can enroll for one semester. They work up to 16 hours per week and attend class for four hours per week at the WEP site. The primary purpose of this program is to develop students’ academic and occupational skills through paid work experience.

Table 1 summarizes the characteristics of students who completed the survey. Both serve non-White populations, and for about 30% of students in both programs, English is not the primary language spoken at home. Students in both programs responded similarly when asked some general questions about school and their future aspirations. Students generally like going to school: About 60% in each program like it very much (marked 4 or 5 on a five-point scale, where 5 = “like school very much;” mean ratings 3.76 [0.84] and 3.74 [0.76] for MMHS and WEP, respectively). MMHS students were a little more likely than WEP students to say that schoolwork is meaningful and important (mean ratings 4.07 [.07] and 3.88 [.91], respectively, where 5 = “almost always”) and a little less likely to feel that school learning would be important in later life (mean [standard deviation] ratings 4.13 [0.75] and 4.29 [0.99], respectively, where 5 = “very important”). Students in both programs had high educational aspirations. Eighty-five percent of MMHS students wanted to achieve a B.A. degree or higher, compared with 74% of WEP students. Most students in both programs were “very sure” that they would reach their educational goals (57% of MMHS students; 63% of WEP students).

The two programs show marked differences in some important dimensions—whether work is paid

TABLE 1
Characteristics of Students

Characteristics	MMHS (N = 55)	WEP (N = 44)
Percent male	24	41
Percent senior	31	89
Percent ethnicity		
Caucasian	0	0
African American	67	71
Latino	19	26
Native American	0	2
Asian or Pacific Islander	7	0
Other	7	0
Percent English spoken at home	70	73

TABLE 2
Selected Characteristics of Programs

Characteristics	MMHS	WEP
Primary program focus	College preparation	Acquire employability skills
Purpose of work experience	Career exploration	Acquire work experience
Wages	Unpaid internship, summer employment for a few students	Paid employment
Length of work experience	One morning a week over several years	Up to 16 hours per week for one semester only
Type of work sites	Medical focus: hospital department, clinics, university labs	Primarily private sector, service, and retail establishments
Student selection	Students assigned to magnet school by lottery	Students at participating schools screened by counselor and program coordinator
Written training plan agreements	Student learning objectives	Contract with employers specifying wages/hours
Mentor training	No	Available, but not mandatory
Supervision at work site	Teachers check attendance	Teachers meet with students/work supervisors
Written evaluation by work site	No	Yes
Work performance linked to grades	Yes—student journals	Yes—supervisor evaluations
Program identifies placements	Yes	Yes

or unpaid, the relative emphasis of school versus work, and the length, number, and type of work experiences available. These and other differences are useful for examining important questions of interest to policymakers and practitioners, such as the quality of student work experiences and the links between school and work. This contrast between the programs implies that we might expect to see differences in student perceptions about the nature of work and links to school in these two programs. The programs are similar, however, in other respects. Table 2 summarizes some of these important features.

Origin

The programs have very different origins, which partly explains their difference in the relative emphasis between school and work. The MMHS

opened in 1982 through the efforts of a local medical university faculty who wanted to increase the number of minority youth pursuing health-related careers. They started the program at a local high school with a foundation grant, then lobbied the school district to support it as part of their magnet high school program. In the 1996 school year, MMHS enrolled 220 students in grades 10–12. MMHS was initially at a local high school, but now occupies space next to the medical university. According to the principal, one reason for this move was to preserve the school's college-preparatory focus. The administrators at the original host high school wanted the program to provide work experiences that might help students prepare for entry-level work right after graduation.⁶ MMHS administrators, however, did not want to run a "vocational" program. They felt that the students should, first

and foremost, be preparing for college, whether they ended up pursuing a health-related career or not.⁷ Over the years, MMHS established a reputation for excellence: State and district evaluations consistently rank it as one of the best schools in the state. In 1994, its graduation rate was 98.9%, with 90% of students going on to college.

The WEP program was established in 1993 as a partnership between the school district and a multinational corporation. The company lost several business establishments during the 1992 civil unrest in Los Angeles and decided to make direct investments in the community in order to improve its image and to continue doing business successfully. They established several programs, including WEP. They initially invested two million dollars to begin the program—primarily to build a facility from which the program would operate—and they spend about \$500,000 for the program’s annual operation. The stated goals of the program are to develop the academic and occupational skills of 11th- and 12th-grade students living in central and south-central Los Angeles, to integrate academic and vocational curriculum, and to provide work-based learning sites for students. The program began in February 1993; by 1996, 445 students completed the program. From the beginning, this program emphasized paid work experience for students, combined with four hours of classroom instruction at the WEP site per week. Students earn from \$4.50 to \$6.00 per hour; the company subsidizes 50% of the students’ wages.

Selection

MMHS does not choose its students, but takes those assigned by the district through the magnet school lottery enrollment system. WEP works with counselors at each participating high school to identify about 15 students to participate each semester. Students must have at least a C average, and their school schedule must allow them to work during fifth and sixth periods. Students fill out an application and are individually interviewed by the program coordinator.⁸ Seniors are given precedence over juniors. Clearly, our samples of students are not representative of the general high school population nationally and consist of students within the district who self-select into these programs. Because our analyses compare the two programs, these differences are less important between students because of selection, except when broader implications are drawn from the study about WBL. It is possible that unobservable differences in motivation or other factors attributable to selection affect our findings, although it is difficult to speculate as to the direction of any such effects.

Work Experience

MMHS students spend one morning a week at their internships. Tenth- and 11th-graders rotate through four sites during the year, spending three to five hours per week at the intern site. Seniors typically spend five hours a week at one or two sites. Tenth-grade students also attend classes two hours a week, which typically feature guest speak-

TABLE 3
Students’ Description of Jobs or Positions (Percents)

Job/position	MMHS (N = 53)	WEP (N = 38)
Volunteer	40	—
Clerk/secretary	4	53
Child care worker	2	5
Research/lab/pharmacy assistant	28	—
Hospital department assistant	25	—
Nurse assistant	2	—
Paralegal	—	3
Administrative assistant	—	11
Customer service representative	—	8
Sales	—	3
Human resources	—	11
Collection representative	—	3
Cashier/teller	—	5

Note. Percents do not sum to 100 because of rounding.

ers. All students keep journals, which the supervising teachers collect and grade. WEP students can work up to 16 hours per week and spend one afternoon attending class at the program site.

As for work experience, the MMHS students all intern in some health-related area (e.g., clinics, hospital departments, medical research laboratories, veterinarians), while WEP student work is more varied. WEP's employers include public and private, large and small companies; some are local or regional establishments (e.g., a cable company, law offices); others are part of large national or international companies (e.g., video store chain).

We asked students to report the title of their jobs or positions and their main duties (see Tables 3 and 4). Not surprisingly, the MMHS students described themselves as volunteers⁹ or as medical assistants. WEP students' responses were much more varied, and over half said they had clerical positions. As for main duties, most WEP students described their main duties as clerical (40%) or data entry (17%, see Table 4). By contrast, only 4% of MMHS students described their work as clerical or computer related; they were engaged in laboratory work (23%), going on hospital rounds (14%), or working with patients (21%). About one fourth of the MMHS students, compared with 10% of WEP students, said their duties were varied. This probably reflects the difference between the two programs: Where students are paid, it is likely that they will have specific work assignments and be able to describe them as such; where students intern for ca-

reer exploration, they may be purposely given a variety of duties.

Coordination

Both programs have a written agreement between the school and work site. At MMHS, each resource site provides a statement of learning objectives that all students are expected to achieve during the rotation. In addition to keeping their daily journals, at the end of each rotation, students must answer questions corresponding to the learning objectives, interview two people at the site, and learn about the college path to their job. Supervising teachers collect journals and monitor student attendance at the internship site.

WEP has a contract with each employer that stipulates that the employer will provide an "educational, work-based learning site" for a certain number of students, a safe working environment, and 50% of the students' salary and will attend a three-and-a-half-hour mentor training class. WEP teachers visit students and supervisors on site, collect supervisor evaluations (which affect students' grades for the program), and send grades and attendance information to the student's home school. The classroom portion of WEP includes image and comportment, computer skills, conversational Spanish, and other topics (e.g., conflict resolution). Students spend two weeks in class before going out on the job. The coordinator recruits employers in the community who will give students productive work experience, ideally where students have

TABLE 4
Students' Description of Main Duties at Work Site (Percents)

Main duties	MMHS (<i>N</i> = 52)	WEP (<i>N</i> = 40)
General clerical/office work	2	40
Computers/data entry or processing	2	17
Accounting/invoice/payroll	—	3
Assist professional (e.g., doctor, lawyer, engineer)	10	5
Child/baby care	2	5
Pharmacy tasks	2	—
Assist patients/translate for patients/take vital signs	21	—
Observe procedures/go on rounds	14	—
Laboratory work/conduct lab tests	23	—
Varies/unspecified	25	10
Cashier	—	3
Stock/parts	—	5
Sales/retail/displays	—	8
Disconnect and restart cables	—	3
Customer service	—	3

Note. Percents do not sum to 100 because of rounding.

some probability of being hired after the semester is over. In both programs, students receive elective course credit for their work experience, and employers know the program coordinator is there to deal with any problems or issues that arise.

The differences between these programs suggest that we might expect some perceived differences in work quality and links to school. First, one can argue that paid work experience has advantages over unpaid work that can affect quality. When students are paid, as in WEP, it is more likely that they will be expected to contribute to productive work, and employers may provide training that enhances this expectation. Co-workers may also take time to teach students to help them be productive workers. Students may be more motivated to learn on the job and to be attuned to the social aspects of work that will make them more successful. They may learn important work-related habits, such as being on time, taking responsibility for one's work, or treating co-workers with respect. Unpaid interns in MMHS, on the other hand, may be less motivated because poor performance has fewer risks. They cannot be fired, and their supervisors do not evaluate them. There are fewer incentives for employers or their employees to train students or to create roles for them that can contribute to productivity. Because students do not have medical qualifications, they are only permitted to observe others' work in many of the hospital departments and thus receive no direct hands-on experience.

Program differences can also affect links to school. Research suggests that extended work hours for high school students can adversely affect school performance. Because WEP students can work four times as much as MMHS students per week, it is plausible that WEP students will experience more conflict. Both programs have procedures for coordinating school and work, but as mentioned, these provide contrasting incentives for students. The teachers' roles are also different. WEP teachers visit work sites and evaluate the students' work experiences, and they can modify their classes at WEP according to employer needs. WEP classes, however, stand apart from the students' home school. MMHS teachers have little contact with employers; their role is primarily to check attendance and collect student journals. These differences may affect the strength of connections between school and work, including the degree to which students can use school learning on the job or, conversely, whether work experiences enhance school learn-

ing. A core rationale for WBL is the opportunity to make these links explicit, thereby enhancing learning in both.

Results

This section summarizes the key findings of the comparative analysis between WEP and the MMHS. We focus on our two main items of interest: the quality of work experiences as perceived by students and the relationship of the WBL to school, including the extent to which the work experience conflicts with or enhances the students' school program.

Quality of Work Experiences

According to the survey, students in both programs seem equally satisfied with their WBL program work overall (mean ratings 4.18 for MMHS students and 4.31 for WEP on a five-point scale, 5 = "extremely satisfied"). Only one WEP student reported being "extremely dissatisfied" with the experience.

How did students perceive the quality of their work experiences? We begin by considering Kohn and Schooler's (1978) "substantive complexity," which Stern et al. (1990) separated into three parts: (a) cognitive complexity, (b) physical challenge, and (c) the opportunity to develop work-related social competence. Cognitive complexity comprises the following concepts: use of reading, math, and writing on the job; use of skills and knowledge learned in school, not limited to literacy and numeracy; mental challenge on the job; perceived opportunity to learn useful skills and knowledge on the job; and use of existing skills and abilities not necessarily learned in school. Physical challenge is assessed by the amount of time students spend working with their hands and the students' perception of the degree of physical challenge present. Opportunity to develop work-related social competence may be proxied by the reported amount of contact with people on the job. While our survey does not permit the replication of all aspects of Stern's analysis of "substantive complexity," it does provide student perceptions of their work experiences on broadly similar items. We discuss each in turn.

Cognitive complexity. To assess aspects of cognitive complexity, we asked students the extent to which the work experience helped them learn how to learn, improve in basic skills (math, reading, and writing), and make decisions. A second item asked the extent to which the job or internship improved

the students' ability to think and solve problems, taught them things useful for later life, and made use of the skills learned in school. (Scale of responses for these two items was 1 = "not at all," 5 = "a great deal"). Finally, we asked students how often they have to think of new ways of doing things or solving problems on the job (1 = "none of the time," 5 = "almost always").

As Table 5 shows, the students' perceptions of various measures of cognitive complexity are, on average, remarkably similar given the contrasting types of work performed in each program and other structural differences. The responses are marginally positive overall. Most students felt work helped improve basic skills (49% of MMHS and 58% of WEP students responded 4 or 5) and made use of skills learned in school (67% of MMHS and 64% of WEP students responded 4 or 5, respectively). Similarly, 69% of students in each believed their work experience taught them general things that will be useful in later life.

Students in both programs also felt their work experience gave them the opportunity to learn new skills beyond the basics—in particular, to "learn how to learn," make decisions, and think and solve problems. The majority of students in both programs rated these items 4 or 5. On the other hand, students also report that their work is not very intellectually stimulating: Only 18% of MMHS and

12% of WEP students describe their work as "mentally challenging," and nearly 30% of students in both programs say the work is not challenging at all.

Finally, we asked students to report whether their job required any reading, writing, and math and, if so, the types of activities called for on the job. Many students reported that their job does not require any reading, writing, or math. Thirteen percent of MMHS and 19% of WEP students don't read on the job; 51% and 34%, respectively, don't use math on the job; and 18% and 23% don't write on the job.

The two programs do not differ significantly with respect to the level of math, reading, and writing employed on the job.¹⁰ Not surprisingly, the most frequently reported reading activity in both programs is "read[ing] safety rules, instructions in the use and maintenance of equipment and tools." Compared with MMHS students, WEP students are twice as likely to report reading job manuals, technical journals, financial reports, and legal documents. This difference probably reflects the fact that WEP students are engaged in paid, productive work, where procedures and tasks are codified in manuals or technical documents. Of students using math on the job, MMHS students reported higher levels of math use than WEP students, including calculating surface area, volume, or weight or applying

TABLE 5
Students' Perception of Quality of Work

Quality indicators	MMHS (<i>N</i> = 55)	WEP (<i>N</i> = 43)
Cognitive complexity		
Learn how to learn	4.09 (1.31)	4.05 (1.17)
Improve basic skills	3.27 (1.59)	3.54 (1.34)
Make decisions	4.07 (1.20)	3.93 (1.35)
Improve ability to think and solve problems	3.51 (1.40)	3.50 (1.42)
Teach things useful in later life	3.96 (1.10)	3.90 (1.32)
Make use of skills learned in school	3.98 (1.11)	3.86 (1.18)
Think of new ways of doing things	2.89 (1.06)	3.10 (1.24)
Physical complexity		
Time working with hands, tools, or machines	3.56 (1.27)	4.12 (1.13)
Social competence		
Work involves dealing with people	3.76 (1.41)	3.51 (1.38)
Learn to get along with people	4.24 (1.02)	4.43 (0.86)
Get to know people with different backgrounds	3.81 (1.24)	4.02 (1.18)
Work with adults	4.55 (0.66)	4.63 (0.86)
Work with others of own age	2.65 (1.35)	3.33 (1.54)

Note. All items on 5-point scales. Means presented first with standard deviations in parentheses.

fractions, percentages, and the like to solve work problems. Finally, WEP students wrote more business letters, summaries, or reports, while MMHS students wrote simple sentences or filled out forms.

Physical challenge. The second dimension of substantive complexity measures to what extent the job or internship challenges the students in a physical sense. Students were asked to indicate how much of their time involves working with their hands or using tools or machines (scale from 1 = “none of the time” to 5 = “all of the time”). WEP students reported significantly more time engaged in such physical activity ($t = 2.28, p < .03$). On the other hand, only 6% of the MMHS students and 2% of WEP students describe the challenges on the job as “mainly physical.”

Opportunity to develop work-related social competence and autonomy. Mainquist and Eichorn (1989) describe social competence as an important dimension of a person’s capacity to perform successfully at work. Hence, as Stern et al. (1990) have noted, the opportunity to develop social competence through WBL experience may be important for students’ future success. Our survey contained a number of items pertaining to social competence (see Table 5). While relatively few students in either program described the challenges in their work as “mainly social” (7% for MMHS, 10% for WEP), they spent a moderate amount of time on the job “dealing with people (for example, selling to customers, talking to your boss, taking care of children, etc.)” with the MMHS students marginally more so. About 80% of the students in both programs believed that their work experience had helped them learn to get along with people (responded 4 or 5, with 5 = “a great deal”).

This picture of similarity between student perceptions of the programs is further confirmed when contrasting the opportunities WBL provides for interaction with people of very different backgrounds, adults, or people of a similar age. Students from both programs interact with people with diverse backgrounds to a certain extent and interact with adults while on the job. Eighty percent of WEP students, compared with 64% of MMHS students, interacted with adults “a great deal.” WEP students were significantly more likely to report working with people their own age ($t = 2.28, p < .03$).

The extent to which students are able to work independently, or have “job autonomy,” may play a role in the development of work-related values and self-concept (Mortimer & Lorence, 1979a,

1979b). Stern et al. (1990) developed an index of job autonomy from survey questions (the sum of nonmissing items) focusing on the degree of autonomous decision-making, the control the students exercise on the job, the closeness of supervision, and whether the students believed their jobs helped them develop the ability to take responsibility, set priorities, and make decisions. Our survey replicated these items. However, of six separate items, none of them are statistically different between MMHS and WEP, nor are the mean index scores (20.44 and 19.75, respectively).

Overall, it is interesting that both groups of students feel that they have some autonomy in controlling their time; about half of the students in both groups responded 4 or 5 (5 = “almost total control”). MMHS students felt they had more autonomy in decision-making and were less closely supervised than WEP students (45% and 55%, respectively, indicated “my supervisor tells me what to do” or “my supervisor usually discusses it with me”). By contrast, more WEP students reported that “I am my own boss” (18%, compared with 10% MMHS students). Students in both programs felt their work experience helped them learn to take responsibility, set priorities, and make decisions; average score on each item for both groups was 3.9 or higher. Generally, reported job autonomy was high for all, with some small variations in the amount of supervision.

Links Between School and Work

We now discuss our survey results regarding the relationship between WBL and school. We first focus on the integration of school with WBL and the awareness of program structural features that are supposed to promote coordination between school and work. We then turn to an examination of students’ perceptions of important ancillary effects on school associated with program participation: conflicts with school work and the impact on social relationships.

School-work integration and coordination. Unlike the work-quality responses, which revealed much similarity between programs, there were several statistically significant differences between the programs on survey questions related to the integration of school and work. These can be explained by differences in program design (see Table 6). First, the teachers in the WEP program are more likely to “talk about [the] work experience in the classroom” than the teachers at the MMHS (scale 1 =

TABLE 6
Relationships Between School and Work

Relationships	MMHS (N = 55)	WEP (N = 43)
Curriculum links		
Teacher talks about work in class	2.73 (1.34)	3.51 (1.42)
Work relates well to school program	4.07 (1.16)	3.36 (1.34)
Can apply what is learned in school on job	3.38 (1.31)	3.60 (1.34)
School learning helps on job	3.65 (1.00)	3.52 (1.21)
Work helps understand school learning	3.29 (1.24)	2.83 (1.34)
Work helps recognize subjects liked/disliked	3.58 (1.34)	3.00 (1.47)
Structural links		
Teacher/coordinator visits site regularly	3.27 (1.31)	2.14 (1.16)
Teacher/coordinator evaluates me	4.19 (1.19)	3.08 (1.33)
Teacher/supervisor developed training plan	2.91 (1.35)	2.59 (1.43)

Note. All items on 5-point scale. Means presented first with standard deviations in parentheses.

“not at all true,” 5 = “very true,” $t = 2.75, p < .01$). Students in the WEP program work four days and attend class at the WEP site one day per week. The WEP teachers use this class time to reinforce the work experience and to discuss any work-related issues that might arise. At MMHS, some teachers are assigned to monitor the students’ internships by making sure the students attend and by collecting and grading the journals that students keep about their work experience. According to the program coordinator, however, it is up to the teachers to integrate academics and health- or medical-related content in their individual classes, and not all teachers choose to do so.

MMHS students are significantly more likely to say that the “work experience relates well to [the] school program” ($t = 2.75, p < .01$). Similarly, MMHS students feel more strongly that the program “has made me recognize the subjects I really like and don’t like” ($t = 2.01, p < .05$). Collectively, these responses suggest that the MMHS experience adds value to the school experience. It provides opportunities for students to explore medical career opportunities and to gain some appreciation for different subject areas.

Another aspect of school-to-work coordination is the way the programs supervise students and assess work performance. According to the survey responses, the students’ perceptions are that the MMHS teachers and coordinators are more involved than WEP teachers. Every three weeks, the WEP instructors visit the work site, meet with the mentor/supervisor and student, and complete an evaluation form. Work-site mentors also sign a

weekly job log that verifies students’ work time and activities and complete a monthly student evaluation form. These logs and evaluations go to the WEP instructor. MMHS teachers, on the other hand, primarily monitor attendance once a week and collect students’ journals. While it appears that WEP has more formal, structured supervision practices, MMHS’s are more frequent. MMHS students are significantly more likely to report that “teachers/coordinators visit the site regularly” and “often evaluate me” than WEP students ($t = 4.49, p < .01$; $t = 4.18, p < .001$, respectively) (see Table 6). Many students seem unaware that their program has a written training plan that guides some aspects of their WBL experience (43% of MMHS and 49% of WEP students rated this item 1 or 2, where 1 = “not at all true” and 5 = “very true”). This seems especially surprising for MMHS students, who supposedly answer questions and fulfill other requirements included in a site’s list of learning objectives.

The broad range of responses on the structure questions suggests that students don’t uniformly understand the way the program is organized between the school and work components. While this does not necessarily always matter, it may affect students’ motivation or send the wrong signals. If students are being evaluated, the best policy is to let them know the criteria and give them regular feedback on their performance (Frederiksen & Collins, 1996). When asked how the students know how well they are doing on the job, only 17% of WEP students, however, report that they receive a “written evaluation from work;” 14% say they

“don’t get much feedback.” MMHS students identify more types of, and more frequent, feedback: Fifteen percent hear from their teachers, 51% from a written evaluation at work, and 27% from a written evaluation at school.

Overall, the MMHS students seem more aware of the structural aspects of their program that are designed to coordinate school and work activities and to evaluate and monitor their WBL performance, and they report more involvement of the adults than WEP students. But students in both programs seem vague on many structural features.

Job Conflicts With School

From survey responses, we determined that WEP students work an average of 17.7 hours per week compared with 4.6 work hours for MMHS students ($t = 13.82, p < .0001$). This raises the important question of whether WBL is perceived to conflict with students’ schooling. Following Stern et al. (1990), we constructed a “conflict” index by averaging scores on several Likert-type items. Specifically, we used survey questions on whether the students agreed that their jobs or internships meant that they had less time to do homework, sometimes came to class unprepared, sometimes came to school tired, or made them want to quit school as soon as possible (1 = “strongly disagree” and 5 = “strongly agree”). We also included student perceptions of whether their work experience had affected their grades (gotten lower/no effect/improved) and if they had taken fewer courses or not. WEP students reported significantly more conflict than MMHS students: Using a simple average of items, WEP students rated the degree of conflict as 1.63 [0.57] compared with 1.21 [0.57] for MMHS, suggesting that their work negatively affected some aspects of school performance ($t = 2.73, p < .01$). The correlation between hours worked and degree of conflict (for the pooled sample, i.e., across programs) was small, but marginally significant ($r = .231, p < .03$), although we are unable to discern whether this effect is truly due to hours of work or some other program effect.¹¹

Looking at the separate underlying items, two of the six items measuring job conflict show statistically significant differences between the programs. The most pronounced difference occurs when the students are asked how much they agree or disagree with the statement that their WBL “makes me want to quit school as soon as possible.” WEP students are rather more likely to want to quit school

than are the MMHS students (mean ratings 1.77 and 1.25, respectively, $t = 2.50, p < .01$). Similarly, and again not surprising given the large difference in hours worked, WEP participants are more likely to agree that “I have less time to do my homework” than MMHS students (mean ratings 2.51 and 1.73, respectively, $t = 2.94, p < .05$).

Clearly, these two results suggest potentially long-run negative ramifications for the students’ academic development (which in turn could affect future earnings) of participation in an intensive WBL program. This picture is corroborated when the students were asked whether the “work experience [has] influenced the courses [they’ve] taken or other school activities.” Forty-two percent of WEP students said they had either “taken fewer courses to have more time for work,” “taken fewer or easier courses to keep grades up when working,” or “reduced extracurricular activities (clubs, sports, band).” However, 93% of MMHS students say that their internships had not influenced their courses or activities. Conflicts with some aspects of school, however, do not necessarily affect students’ grades: Ninety-five percent of students in both programs report that either their grades have not changed or that their grades have improved as a result of the work experience. We were not able to independently corroborate students’ grades, however, to verify students’ reports.

Effect on Social Relationships

The survey also permits an analysis of the influence the programs have on the students’ friendships. Not surprisingly, in light of the differences in work in the two programs, we find significant differences in students’ responses to all three relevant items. WEP students were more likely to agree with the statement, “I see my friends less often than I used to” (mean ratings 2.71 [1.44] and 1.51 [1.07] for WEP and MMHS, respectively, $t = 4.49, p < .001$).

Does the fact that WEP students earn money for their work perhaps compensate for the increased pressure on friendships? Students were asked if they agreed that “I have more money and am able to go out with my friends more often.” MMHS students more strongly disagreed with this statement (mean ratings 1.69 [1.12] and 3.67 [1.18] for MMHS and WEP, respectively, $t = 8.34, p < .001$), though this may simply be due to the fact that they disagree with the first part of the statement (because their work is unpaid). WEP students are also more likely to perceive that their WBL “gives me higher status

among my friends” (mean ratings 3.20 [1.45] for WEP and 2.42 [1.50] for MMHS, $t = 2.56$, $p < .01$). For WEP students, there appears to be some compensation for not seeing one’s friends as much: Work provides status and money to spend when they do see them.

Discussion

Although work-based learning appears to be growing in popularity, few studies have examined student experiences in these programs. Earlier research on WBL compared school-supervised work experience, such as that provided in our programs, and nonsupervised work experience that characterizes regular youth jobs. The present study differs somewhat in that we explicitly compare two contrasting WBL programs; from what we know from other research about the usual experiences of high school students in unsupervised jobs, we can also make comparisons between non-WBL jobs and our programs. In this section, we draw conclusions in both of these ways. We first discuss our findings in relation to work quality and links to school between our two programs. Second, we discuss the implications of our study for the broader WBL debate.

First, what can we conclude about the two types of WBL programs we have examined in this study? Looking at a variety of indices of work quality, we find few differences between the programs. Few students in either program use any higher-level math, reading, or writing skills, and only about half of the students in each group feel the job helps them learn to think and solve problems. They do not find their work experience very challenging, although they are satisfied with their work overall. While WBL does not appear to significantly enhance basic skills or problem-solving, both programs seem to support learning other work-related skills or dispositions, such as social skills or positive attitudes toward work. At least 80% of students in both programs report that work experience helped “a great deal” in learning to follow directions, get along with people, take responsibility, communicate with others, strive to do well, and learn how to learn. These findings corroborate other research in suggesting that high school students gain primarily work-related attitudes and appropriate behaviors from their WBL experiences rather than technical knowledge and skill (Hamilton & Hamilton, 1989).

Looking at links between work and school, we find that students in these programs perceive them

to be weak, even when there are explicit structural features that are designed to facilitate coordination. The program designs appear to support coordination in some ways, but not in others. The general school experience for the WEP students is entirely separate from their work experience. Because students are drawn from different schools and the WEP classes are held apart from the home school, the regular home-school teachers are not part of the program at all. They may or may not know that a student is even enrolled in WEP and working after school. This makes integration between regular school and work very unlikely.

The study also found that WEP program participation conflicts with aspects of school. WEP students report higher degrees of conflict, having less time to do homework, and being more likely to quit school. This crucial relationship needs further examination because our study could not control for other mitigating factors. It may be, for example, that the students who enrolled in WEP were already academically unsuccessful or bored with school and inclined to quit school as soon as possible to join the labor force. In this light, the WEP experience perhaps reinforced their inclination. Conflict may also be related to the structural feature of the program discussed above. These students see little connection between work and the home school, and the kinds of support needed to mitigate potential conflicts with school do not exist. WEP program designers might seriously reconsider this aspect of their programs. It may be that students can achieve the same outcomes by working shorter hours. Or program designers might find ways to more closely track students’ school performance and provide assistance or advice to students who seem to be falling behind or are in danger of doing so. At present, WEP teachers more closely monitor work performance than school performance.

At MMHS, the medical careers theme supports links to school at a general level, but this does not extend to the classroom. Here, the wider goal of career exploration is met as students rotate through different medical settings over the course of their school career. Students feel that work relates to the school program and helps them identify academic and occupational preferences. Unlike the WEP students, they seem aware that teachers and coordinators are present to monitor WBL and say they receive feedback on their performance through a variety of mechanisms. However, students also seem unaware of some program features that presum-

ably coordinate school and work activities, such as a set of learning objectives. Except for monitoring student attendance, teachers do not have any formal connection with the work sites. MMHS might explore ways to strengthen curriculum links between school and internships. If teachers had better information about the nature of student internships, they might tailor classroom instruction to prepare students for their intern experiences or to reinforce what they have learned on internships. A biology or science class, for example, might familiarize students with concepts that they are likely to encounter in a hospital department or laboratory (e.g., blood chemistry, scientific procedures). Because students intern weekly over a period of three years, there should be many opportunities to make these kind of connections.

Although our study of two programs raises concerns about work quality and a lack of coordination between school and work, we also see positive signs in our results. Students report learning a variety of skills and work-related attitudes and also feel that their work experience is valuable. Programs may be seen as successful because they meet their main goals of either promoting career exploration or, as a WEP teacher said, “getting kids job-ready.” WEP also provides important opportunities for participating students that they might otherwise not find. It provides minority students with paid work in the community. It teaches important employability skills: Indeed, one of the goals of the program was to fill the gap that exists because high schools pay little attention to fostering employability skills. Some students get full- or part-time employment at the same company after their semester in the program.¹²

When compared with the broader goals of WBL and judging the quality of the work experiences, the survey data seem to raise as many questions as they provide answers. Unfortunately, survey data—though valuable for indicating students’ views of their learning at a general level—do not provide answers to some important questions about the quality and value of WBL programs. For example, the similarity of student responses to questions regarding work quality might have several competing interpretations.¹³ It may be that the kinds of work experiences students receive are not important or that our measures failed to capture real differences or that students are unable to discern true differences. Similarly, we find some inconsistencies between student perceptions of structural features and

features as reported by program designers. This may be a sign that students are unaware, or it may point to genuine implementation problems. Without further research, it is problematic to distinguish among these explanations.

Adequately measuring program quality is especially important because WBL has costs. Although we cannot conclude unreservedly that time at work conflicts with school, it is an issue that program designers should seriously consider. Other studies also suggest that program participation can conflict with school for some students. Stern et al. (1997), for example, find a negative correlation between working longer hours and students’ grade-point averages; this relationship is stronger for students in non-school-supervised jobs than for those students participating in co-op programs. According to Stern et al. (1997), structural features of the WBL program can have an important effect on the extent to which students experience conflict with work, and the degree of conflict can be mitigated by coordinating the school and work aspects of the program. Thus, in designing programs with a WBL component, it is important to consider potential negative effects and to structure the program to minimize conflicts.

Less often discussed in the literature are the transaction costs associated with setting up, delivering, and monitoring WBL programs. The WEP program requires a substantial yearly investment to subsidize students’ wages. Both programs have a full-time coordinator to organize and schedule student internships. Both programs have plans to expand, and both express concerns about finding the funds and participating employers needed. Are the kinds of outcomes identified in this study worth these costs or not? Are they worth the costs for some students? Program designers need to fully consider the costs and benefits of WBL in order to consider these and other tradeoffs. Future studies that explicitly measure costs and benefits would be valuable to program implementors and policymakers alike.

At the moment, the value of WBL rests on the logical argument that work-based learning provides students with opportunities to learn beyond what can be offered in classrooms and that what they learn there is important for their educational and employment futures. Because WBL is associated with a number of costs, it is important to go beyond the rhetoric and to assess the value added of WBL. Future research, then, must further examine

the variety of learning environments offered through WBL and the kinds of learning it promotes. In doing so, further work should gather systematic information about the learning process and about the short-term and long-term outcomes of WBL participation. Too many studies emphasize programmatic features, such as connections with employers and the details of implementation. While this work is important for understanding how to structure programs, it does not reveal much about work-based learning. The real power of the WBL concept is pedagogical: Work should give students opportunities to apply knowledge in contexts in which it can be put to use, thereby gaining deeper understanding. Whether WBL can provide such experiences, and at what cost, requires knowing much more about the learning process and the characteristics of work-based learning environments. In the end, learning is a personal, developmental transformation, so we must pay attention to whether or not that transformation occurs.

Notes

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¹Although, on average, the majority of high school students find employment, employment rates differ for different groups. In 1992, for example, 24% of high school students age 15–24 were working, but White students were twice as likely to be working as minority students (U.S. Department of Commerce, 1992). Some programs, including one in our study, are specifically designed to provide work experience for minority youth because real opportunities in the community are scarce. In this context, WBL may have value in providing work experience alone, irrespective of its relationship to school. In addition, conventional wisdom characterizes youth jobs as low-level “McJobs,” which do not afford students the opportunity to gain higher-level skills that might enhance their overall employability. Studies that closely examine the quality of youth jobs in comparison with school-supervised work experiences, however, have not been conducted.

²See U.S. Congress, Office of Technology Assessment (1995) for further discussion of the various rationales for WBL.

³The larger study from which this article is drawn includes four programs. In addition to student surveys and interviews, we observed a few students from each pro-

gram on the job. Forthcoming papers will use these case studies to examine the social context of work-based learning and work quality in more detail.

⁴These small samples sizes prohibit all but the most limited multivariate analyses. We did not detect any particular nonresponse bias except MMHS staff noted that some seniors, who were preoccupied with graduation festivities, did not choose to participate. In addition, the sample of WEP students includes a few who participated during fall semester 1995, who were present at the program site when the surveys were administered, and who were old enough to provide their own consent.

⁵For the purpose of confidentiality, the programs will remain anonymous.

⁶In this school district, many of the magnet schools are housed at regular high school campuses.

⁷This emphasis on college preparation is reflected in several aspects of the program. The school discusses the work experience portion as an internship, not work. The work sites are called resource sites, not employers. In fact, when we initially approached the school to participate in the study, the administrators declined at first because they said they were not a vocational program and were not providing work-based learning.

⁸The coordinator has standardized her selection process, giving students points for attendance, attire, and the like and has established a minimum criteria for selection into the program. Occasionally, the coordinator will admit students who do not meet all of the requirements but is highly recommended by the school counselor. Although she says these exceptions never work out, she continues to make them because “maybe the next student will work out.”

⁹The school’s view of WBL as a volunteer internship was well ingrained in these students. Some had a difficult time with survey questions that referred to their WBL experience as their “job” because they associated jobs with work for pay.

¹⁰Students checked all the ways they employed reading, writing, or math. Mean scores for each were constructed by assigning a value to items in order of complexity and assigning each student the highest value he or she reported. For example, 1 = “print or write simple sentences” and 5 = “write manuals or editorials.” A student checking both items would receive a writing score of 5.

¹¹There is insufficient variation in hours within a program to be sure that a relationship exists between hours and conflict. In the pooled correlation, the variation in hours primarily reflects the difference between the two programs, and the sample sizes are too small to test the independent effects of hours worked apart from other program effects. It should be noted that several alternative constructions of the index were employed but yielded substantively the same results. For example, we used an index of nonmissing items calculated as a simple average (regardless of each item’s scale) and a weighted av-

erage so that each item in the index was counted equally.

¹²The WEP tracking report, which tracked students from fall 1993 to spring 1996, shows that 445 students graduated from the program. Of these, 57% are working and in college, 29% attend college only, 8% are in the workforce only, 1% are unemployed, and 5% could not be located.

¹³We owe this point to an anonymous referee.

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Authors

CATHLEEN STASZ is a senior behavioral scientist and site director for the National Center for Research in Vocational Education at RAND, 1700 Main Street, Santa Monica, CA 90407. Her specialties are teaching, learning, and education and training for work.

DOMINIC BREWER is an associate labor economist at RAND, 1700 Main Street, Santa Monica, CA 90407. He specializes in education finance and productivity and education policy.

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