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ABSTRACT

A comprehensive evaluation of state and local progress in implementing school-to-work (STW) programs focused on the following: whether states and local partnerships have created coherent STW systems of connected, sustainable practices and programs; how STW systems have changed students' experiences at the elementary, secondary, and postsecondary levels; and whether widescale adoption of the activities and practices promoted in the School to Work Opportunities Act of 1994 (STWOA) has occurred. The evaluation has four components: surveys of all local partnerships; in-depth case studies of 8 states and a sample of 39 local partnerships; survey of grade 12 and postsecondary students in the 8 states; and analysis of high school transcripts for the student sample. According to the data collected to date, modest progress has been made on the STWOA agenda. Broad career development is being emphasized most, and STW experiences are engaging a diverse mix of students who generally consider those activities helpful in clarifying their career goals. (Twenty-eight tables/figures are included. The report contains 22 references. Appended are the following: local partnership survey completion rates in fall 1996 and 1997; student outcomes related to government performance and results indicators; and participation in three STW components by student subgroups.) (MN)

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EXPANDING OPTIONS FOR STUDENTS

Report to Congress on the National Evaluation of School-to-Work Implementation

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ACKNOWLEDGMENTS

This report presents an assessment of STW implementation progress, with sincere appreciation for the work that has already been undertaken and the challenges that educators and others face in developing STW systems. The evaluation has, and will continue to benefit from, the efforts of STW practitioners nationwide. We are grateful, for example, for the patience and cooperation of the thousands of local STW partnership coordinators and school personnel who respond to the national partnership surveys and to the state directors who have been encouraging them to do so. The time they have given to helping us chart the course of STW implementation is one measure of their dedication to the STW initiative.

Our special thanks go to the many people in the eight states that are a focus of the national evaluation. In particular, the state STW directors and others in their offices have provided us with assistance in organizing our data collection efforts and with overall support for the evaluation. They include Michael Brawer and Frank Hammons in Florida, Dianne Smithers in Kentucky, Katherine Oliver in Maryland, Fran Kane and Kathy Flynn in Massachusetts, Robert Pendleton in Michigan, Robert Radway and Susan Streitenberger in Ohio, Nancy Hargis and Holly Miles in Oregon, and Vicki Poole in Wisconsin. Local partnership coordinators in the 39 partnerships we visit, and the many educators, employers, and others who met with us in those sites (too numerous to name), have also been indispensable to the evaluation.

The evaluation has also benefited from advice and guidance along the way. Thanks go first of all to David Goodwin, the evaluation project officer at the U.S. Department of Education, for his steady support, persistence, and useful suggestions. Staff at the national School-to-Work office, including Sharon Belli, Gail Schwartz, Irene Lynn, and former director J.D. Hoye have provided important assistance and comments, as have Eileen Pederson and Dan Ryan at the U.S. Department of Labor and Nevzer Stacey at the U.S. Department of Education. Assistant Secretary of Education Trish McNeil and others on her staff continue to make valuable contributions to the study and its reports. We also gained useful insights and help from an advisory panel composed of Tom Bailey, Peter Capelli, Allie Gordon, Norton Grubb, Stephen Hamilton, Gerald Hayward, Peter Joyce, Glen Moore, Ernest Nicholson, and Kathy Rice.

The evaluation team includes many members beyond the authors. Others play important roles in collecting and synthesizing site visit information and, therefore, in shaping the evaluation products: Linda Rosenberg and Charles Nagatoshi at Mathematica Policy Research, Inc.; Denise Bradby and David Emmanuel at MPR Associates; and Gwen Josephs, Rhonda Strauss, and John Beal at Decision Information Resources, Inc. With great skill and patience, Mathematica's Pat Nemeth oversees the evaluation's survey data collection, with dedication and help from Kathy Sonnenfeld, Anne Self, Kim Zito, and a group of hard-working interviewers and support staff. Patricia Ciaccio, Jill Miller, and Jennifer Baskwell provide important editorial and production support. Walter Corson at Mathematica and Gary Hoachlander at MPR Associates, Inc. provide useful quality assurance and advice. Allen Dupree gave his time and expertise to ensure the quality of the analysis. He has passed the baton to Michelle Van Noy, whose research assistance has already been important to the evaluation. We are grateful for the efforts of all those who helped complete this report.

CONTENTS

CONTENTS *(continued)*

CONTENTS *(continued)*

CONTENTS *(continued)*

TABLES

FIGURES

FIGURES *(continued)*

FIGURES *(continued)*

EXECUTIVE SUMMARY

Throughout the United States, important efforts are being made to strengthen the way young people identify career goals and develop the educational foundation needed to achieve them. These efforts are in part a response to the School-to-Work Opportunities Act (STWOA) of 1994. The STWOA provides five years of "seed money" to help create school-to-work (STW) systems through state initiatives and local partnerships of schools, employers, organized labor, and others. Under the STWOA, nearly $1.5 billion was appropriated in fiscal years 1994-1998 for grants to states and local partnerships.

This report is part of a comprehensive evaluation of progress made by states and local partnerships since 1994 in implementing STW systems. Some states and partnerships have received STW grants only recently, so the full consequences of the STWOA cannot yet be judged. The evaluation will therefore continue to track implementation progress for several more years. The main findings reported here, however, draw on data from states and sites with considerable implementation experience, and therefore the major themes are likely to persist.

Key Findings on STW Implementation

Modest progress has been made on the ambitious STWOA agenda. STW partnerships have energized cooperation between educators and employers, helped build support for STW reforms, and somewhat expanded students' educational options. There remains, however, considerable variation in implementation emphasis and student participation across the three main STW components that partnerships were expected to promote: (1) career development activities to expose students to career options and encourage planning for the future, (2) curriculum changes to integrate academic and vocational instruction and create career-focused programs, and (3) work-based learning linked to the school curriculum. Key findings about these STW components include:

- ***Broad career development is emphasized most.*** Career exposure through job shadowing, worksite visits, and career awareness classes is widespread and expanding. Academic classes with a career focus, and intensive work-based learning activities such as internships and apprenticeships, are less common and growing slowly, in part because many parents and students still see such activities as inconsistent with aspirations for a four-year college degree. About three percent of 1998 seniors in eight states examined in the evaluation participated in the three major STW elements.

- ***STW experiences engage a diverse mix of students, who generally view them as helpful in clarifying career goals.*** College- and non-college-bound students are about equally involved in the experiences the STWOA promotes and value STW activities.

Although progress has been made, the practices that the STWOA promotes may be difficult to sustain. STW implementation is rarely at the core of states' high-priority education reforms to increase school accountability and academic standards. Moreover, after federal STW funding ends, it appears that few states or local partners will continue to fund local partnerships. As a result, there is a risk that coordinated efforts to promote STW reforms will wane.

The School-to-Work Opportunities Act: Provisions and Interpretations

The STWOA was conceived to help communities give students a combination of school- and work-based learning that would improve their educational preparation for careers and thus strengthen the U.S. labor force and its competitiveness in the global economy. It emphasized linking academic and vocational instruction with practical workplace training, in ways similar to those of European youth apprenticeships. Research had suggested that such "learning in context" could improve students' motivation, attitudes toward work, and skills--goals the STWOA noted as particularly important to the large fraction of Americans who enter the workforce without a four-year college degree.

The STWOA gave state and local leaders wide discretion in implementation approaches but charged them with creating three main components of a STW system:

- ***School-Based Learning.*** Partnership schools were to create "career majors"--integrated academic and vocational courses focused on a career area or industry students plan to enter, with links to related postsecondary programs. Students would choose a career major by 11th grade. Earlier, career awareness and exploration activities would help students set goals and choose a career major. Career majors would adhere to the highest academic standards and offer students a chance to earn portable, industry-recognized skill certificates.

- ***Work-Based Learning.*** Partnerships were to create opportunities for students to take part in work experience and training coordinated with their school-based studies and their chosen career major. Work-based learning would involve progressively more advanced skill instruction and encompass all aspects of the target industry.

- ***Connecting Activities.*** The STWOA stressed some activities to help coordinate partnership members' efforts. For example, partnerships or particular members would have to recruit employers, match students with work-based learning, help employers work with students, and assist schools and employers in integrating their instruction.

Implementation of the STWOA and the specific experiences and activities it promotes reflects two diverging conceptions of its purpose. On the one hand, it has been read as calling for structured programs (such as youth apprenticeships) combining career development, a career major, and workplace activity, particularly for students who are not aiming to go directly to four-year college programs. This interpretation is reflected in partnership initiatives related to vocational programs and targeting vocational students. On the other hand, the legislation stresses that STW activities should be accessible to all students and that states and local partnerships can tailor implementation to local circumstances. As a result, many proponents interpret the law as a list of particular reforms that--singly or in various combinations--would benefit all students, only some of whom would take part in the full program model described in the STWOA. The national School-to-Work office has promoted this broader interpretation, and the evaluation has found that the implementation strategies of most local partnerships reflect this approach.

The Evaluation of School-to-Work Implementation

The legislation called for a national evaluation of STW implementation, which is being conducted by Mathematica Policy Research, Inc. and its two subcontractors, MPR Associates, Inc. and Decision Information Resources, Inc., under contract to the U.S. Department of Education, with the support of the U.S. Department of Labor and the national School-to-Work office. The five-year evaluation addresses four key questions, with four evaluation components:

Evaluation Questions	Evaluation Components
Have states and local partnerships created ***coherent STW systems*** of connected, sustainable practices and programs?	***Surveys of all local partnerships*** in late 1996, 1997, 1998, and 1999
How do STW systems ***change what students do*** at the elementary and secondary education levels?	***In-depth case studies*** of eight states and a sample of 39 local partnerships in 1996, 1997, and 1999[1]
How do ***postsecondary paths*** change as STW systems are developed?	***Survey of students*** in these eight states: 12th-grade surveys in 1996, 1998, and 2000, and postsecondary followup
Are the activities and practices the STWOA promotes adopted on a ***wide scale?***	***Analysis of high school transcripts*** for the student sample, to determine which segments of the population participate in STW activities

This report draws on some, but not all, of the data that will eventually be collected:

- The 1996 and 1997 local partnership surveys, which achieved response rates of 91 percent (828 completions) and 87 percent (998 completions), respectively[2]
- Two rounds of visits to 39 local partnerships and their schools, in spring 1996 and spring through fall 1997
- Surveys of 12th graders in the eight in-depth study states in spring 1996 and 1998, with completion rates of 80 and 83 percent (2,203 and 2,349 interviews in the two years, respectively) and a fall 1997 follow-up survey of the class of 1996 sample, with a completion rate of 81 percent (1,776 completed interviews)
- Analysis of high school transcripts for the 1996 student sample

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[1]The in-depth study states are Florida, Kentucky, Maryland, Massachusetts, Michigan, Ohio, Oregon, and Wisconsin.

[2]By mid-1997, 37 states had received implementation grants, and local partnerships had been funded in 35. However, one state refused to participate in the partnership survey. The 1997 survey thus included 34 states.

The evaluation can help us understand the extent to which a STW system is being created and how students' experiences are changing. It cannot, however, provide evidence of whether STW activities cause changes in student outcomes. STW implementation generally involves broad and diverse initiatives that in varied ways touch most or all students, so it is impossible to distinguish between participants and an unaffected comparison group. Even generalizations about STW implementation must be drawn cautiously, because the data do not encompass all implementation experiences nationwide. For example, the evaluation focuses on high school activity, while some STW partnerships may emphasize implementation at the elementary or middle school levels. However, the case studies and surveys have included a sample broad enough that the resulting findings most likely indicate experiences emerging in other states and communities.

CREATING AN INFRASTRUCTURE FOR A STW SYSTEM (Chapter II)

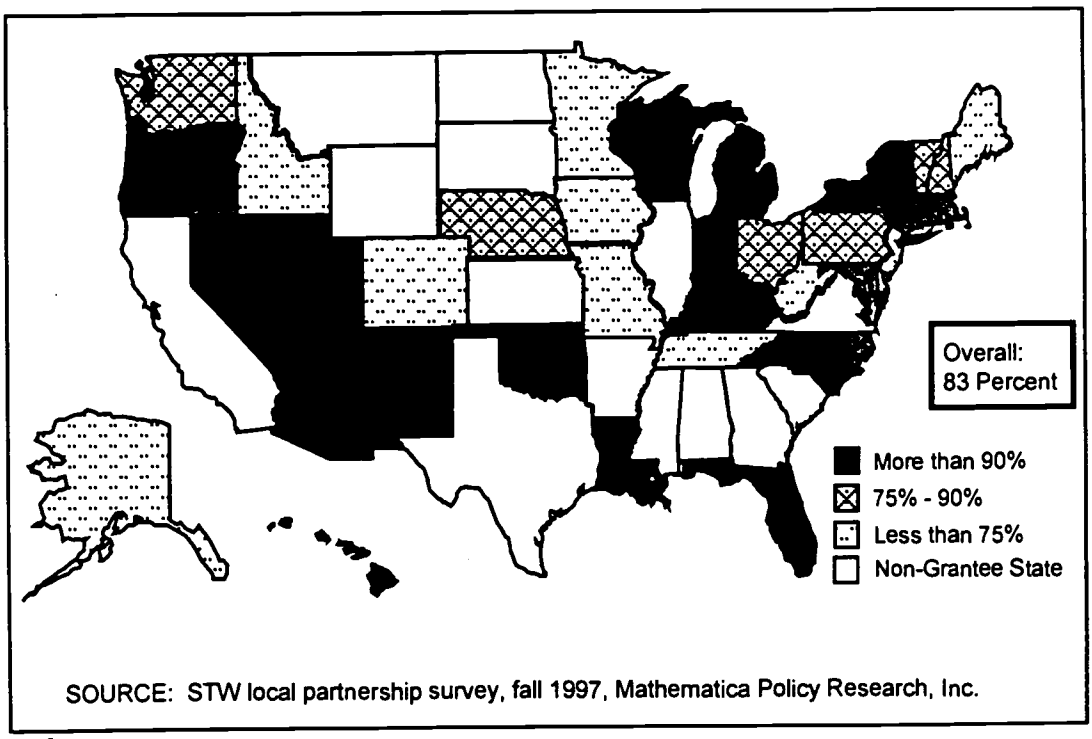
Although STWOA funding was meant to be short term, the legislation envisioned an infrastructure of leadership entities and policies. Partnerships at the state and local levels would lead the development of STW systems. These collaborations would coordinate the efforts of educators, private-sector firms, labor unions, parents, students, and community groups. Through new policies and practices, partnerships would promote new institutional relationships that in turn might improve student learning--both at school and at employer workplaces.

States Have Created a Widespread, Diverse, and Growing Set of Local Partnerships

The most visible product of grantee states' efforts is the widespread creation of local STW partnerships. The STWOA called for establishing local partnerships throughout each state, and states made the formation and funding of local partnerships an early priority. How partnerships are defined is left to state and local discretion, but these local collaborations were clearly intended to be more than conduits for federal funds to schools and other members. The STWOA makes them "responsible for STW programs" and for stimulating STW reforms.

- ***Local partnerships are widespread and expanding.*** By fall 1997, the 34 grantee states surveyed had formed 1,106 local partnerships, including 83 percent of their secondary school districts. Partnership coverage continues to expand as new partnerships are formed and some add new district members, but variation in coverage still exists across states (Figure 1).

FIGURE 1
PERCENTAGE OF DISTRICTS INCLUDED IN 1997 SCHOOL-TO-WORK PARTNERSHIPS, BY STATE

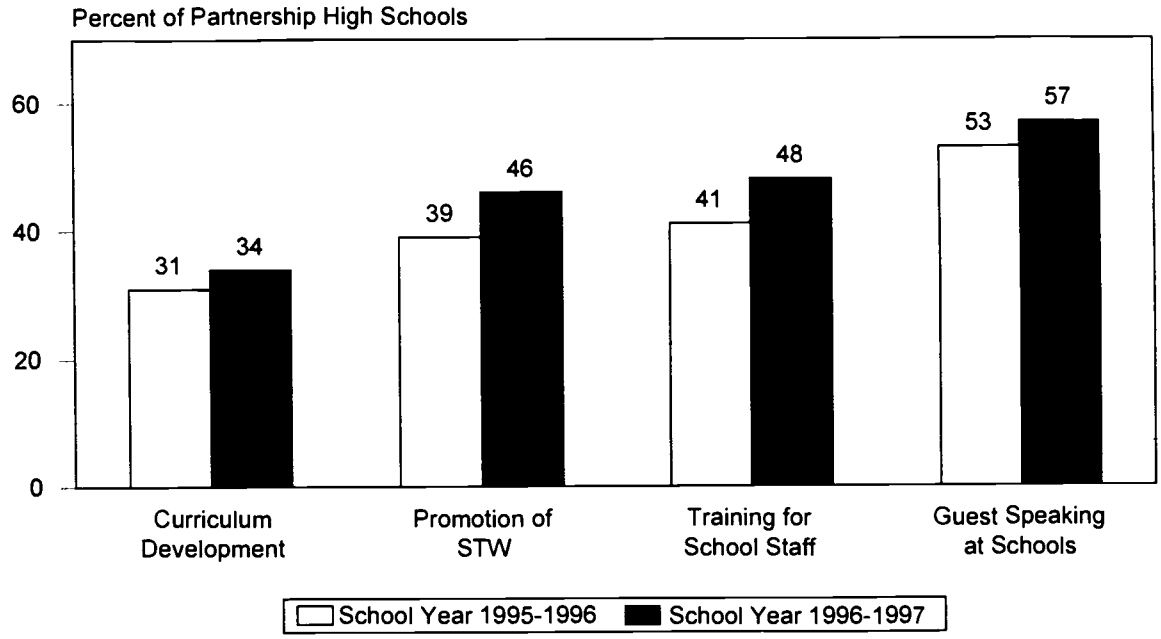


SOURCE: STW local partnership survey, fall 1997, Mathematica Policy Research, Inc.

- ***Educators generally lead partnerships, but employer involvement is expanding.*** The anticipated core partners--districts, high schools, postsecondary institutions, and business representatives--are members of nearly every partnership, but organized labor is less involved. Employer collaboration with schools is increasing substantially (Figure 2), but the role of colleges--beyond simple partnership membership--remains somewhat limited. Despite the growing and varied contributions employers make to STW development, educators usually lead in making partnerships function.

- ***Partnerships play a primarily capacity-building role.*** Partnerships, as coordinating bodies, generally focus on developing members' capacity to implement STW reforms rather than initiating new programs themselves. In part, this is because funding levels are modest; local grants, if spread among members, would amount on average to just $25,000 per year per school district--or $4.32 per student. Partnerships that span multiple communities typically take on four capacity-building roles: (1) convening members to discuss common issues, increase awareness of STW, and sometimes form a common agenda; (2) promoting professional development; (3) engaging employers; and (4) allocating subgrants to members.

FIGURE 2
BUSINESS AND INDUSTRY SUPPORT PROVIDED TO SCHOOLS



SOURCE: STW local partnership survey, fall 1996 and fall 1997, Mathematica Policy Research, Inc.

States Support Local Implementation, but Visibility of High-Level Collaboration Is Waning

States have generally created two structures to oversee and support STW implementation. From state-level site visits in the eight in-depth study states, as well as discussions with STW leaders elsewhere, it is clear that states have established governance committees or boards, usually involving representatives from key state education and workforce development agencies, the private sector, and (sometimes) organized labor. Second, they have created STW administrative teams, typically housed in one of the collaborating agencies, to administer substate grants and provide ongoing support and technical assistance to local partnerships. Findings about the evolution of these structures have emerged:

- ***States provide guidance and assistance, rather than mandating particular implementation approaches.*** State administrative teams have played supportive, rather than prescriptive, roles in stimulating local STW development. For example, they organize informational conferences, sponsor professional development workshops, and prepare curriculum tools and "how-to" guides for local partnerships to use. Even when states issue STW implementation guidelines, they rarely insist on strict compliance, allowing considerable local discretion. Some states use special grants, tax advantages, or subsidies, from STWOA funds and other sources, to encourage particular program features--such as the financial incentives some states offer employers to promote youth apprenticeships or other types of employer participation.

- ***High-level collaboration and governance were important initially but have been less visible over time.*** Participation of high-level representatives from key state agencies (and private-sector leaders) on collaborative boards was necessary early in the process to build support and develop a vision for STW initiatives. Over time, however, many of these formal collaborations have become less central to STW efforts. Some state-level STW governing bodies meet infrequently; others have disbanded or had their responsibilities subsumed under other state boards or councils. With STW funding winding down, states appear to be taking their cues from federal actions, which so far have not placed priority on continuing STW concepts in new federal education or workforce development legislation. Although STW implementation may not remain at the center of high-level attention, in most states, STW offices and their line staff continue to provide support and guidance. These efforts do not seem to depend on the same high-level agency collaboration and decision making noted in the first years of STW implementation.

Local Partnerships Make an Important Contribution, but Their Future Is Uncertain

In many areas, local STW partnerships play important roles in promoting and coordinating STW development. Particularly where partnerships span multiple districts across a substate region, they stimulate STW awareness and implementation efforts, combine resources to seek common solutions, and often broaden the range of workplace opportunities for students.

The STWOA assigned a key role to local partnerships for the five years of federal funding but left open what would become of these partnerships afterward. At this point, most local partnerships are still receiving some level of STWOA grants; for many, however, these will end soon. If states or communities believe that the cooperative structure and functions of the local partnership should continue, resources will have to be found elsewhere. Two predictions can be made from the information gathered for this evaluation:

- ***States aim to sustain local partnerships, but funding them will be difficult.*** So far, commitments for state funding or the permanent establishment of local partnership structures are uncommon, at least among the eight in-depth study states, five of which were the earliest funded by the STWOA. A few local partnerships are planning to raise funds from member districts and employers to support partnershipwide functions and the staff to conduct them, but they have not yet fully carried out such plans.

- ***Partnerships built on other related collaborative structures are most likely to survive.*** With federal funding ending and state funding specifically for STW partnerships rare, prospects for continuation of many partnerships are limited. Partnership survival seems most probable where STW builds on preexisting collaboratives, such as Tech-Prep consortia or intermediate educational service districts, that have similar convening and capacity-building roles. The local partnership survey suggests that about a quarter of local partnerships are aligned with Tech-Prep consortia.

CHANGING STUDENTS' EDUCATIONAL EXPERIENCES (Chapter III)

Congress enacted the STWOA as a way to promote a major transformation in how American students are educated. It encourages educators and other partners to support three key changes:

- ***Increase opportunities for career development.*** Expand ways for students to learn about their interests and aptitudes, the rewards and demands of different careers, and the education they will need to meet their career objectives.

- ***Make school curricula more relevant to career paths and workplace skills.*** Modify school curricula to organize at least part of students' studies around their career interests and to strengthen their ability to solve problems and apply knowledge.

- ***Expand work-based learning linked to school.*** Provide opportunities for a wide range of students to receive career exposure, work experience, and training at employer sites and create strong connections between workplace learning and classroom studies.

The evaluation has gauged both the availability of these STW activities and student participation in them. The national partnership surveys measure availability, focusing on the perspective of the partnerships and schools that maintain and enhance existing programs and develop new opportunities for students. Student surveys have been used to estimate participation in formal programs or activities that partnership coordinators and schools might view as their STW endeavor. The student surveys also reflect the students' perceptions of STW features in their regular school program, workplace activities they find on their own, and connections among school courses, workplace activities, and their career interests. This is appropriate, since the ultimate aim of the STWOA is not simply to create new programs but to ensure that students can benefit from certain types of experiences, some of which may already exist.

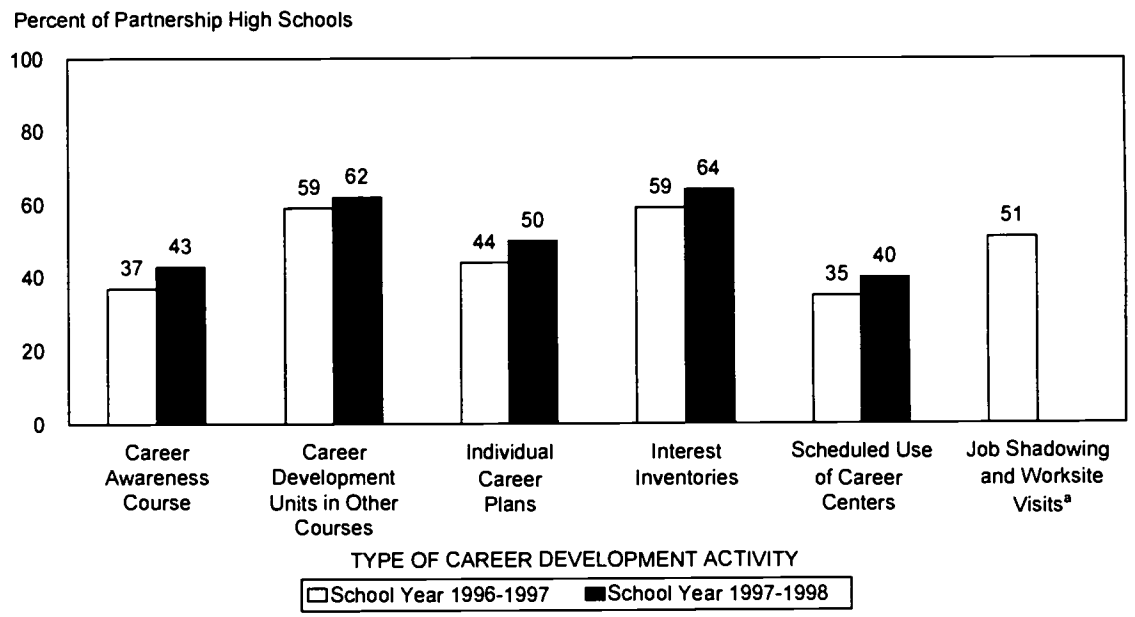
Comprehensive Career Development Is Growing, but Linking Activities Remains Difficult

The STWOA encourages partnerships to make career development activities an integral part of education at all grade levels. Possibly as early as the elementary grades, students are to engage in age-appropriate career awareness, exploration, and preparation activities. Schools are expected to help students learn about the world of work, identify their interests and talents, and develop their ability to plan and decide--skills critical for later career success. Schools and other partners are expected to provide and support counseling and mentoring, group activities, and other opportunities (in and outside school) for students to explore career options. Some of these opportunities were offered in many schools and promoted by many states, for years before the STWOA.

- ***The STWOA has added impetus to the growth of career development activities.*** Federal support for STW systems has provided resources and priority for expanding career development activities. From school year 1996-1997 to 1997-1998, the availability of the most common career development activities, as reported in the partnership survey, increased (Figure 3). Student participation in the eight in-depth study states also seems to have increased. For example, students' involvement in job shadowing and worksite visits rose from 62 percent for the class of 1996 to 67 percent for the class of 1998, mostly due to a rise from 25 to 34 percent in the job shadowing participation rate (not shown in figure). However, no substantial growth has been observed in the availability of career development activities among alternative education providers, some of whom use a STW approach in serving at-risk students and school dropouts.

- ***Making career development a coherent progression remains challenging.*** Although partnerships and students report more career development activities, case studies suggest that, for most students, these activities are somewhat unconnected. In many schools, lack of planning time, difficulty maintaining communication among counselors across school levels, and counselors' large student loads are limiting factors. Schools are increasingly developing comprehensive career development programs, but their efforts so far focus most on individual components, such as administering interest inventories or providing job shadowing opportunities. Effective linking of activities, where each activity builds on the next to help students focus their career exposure and planning, remains difficult.

FIGURE 3
GROWING AVAILABILITY OF CAREER DEVELOPMENT ACTIVITIES



SOURCE: STW local partnership survey, fall 1996 and fall 1997, Mathematica Policy Research, Inc.

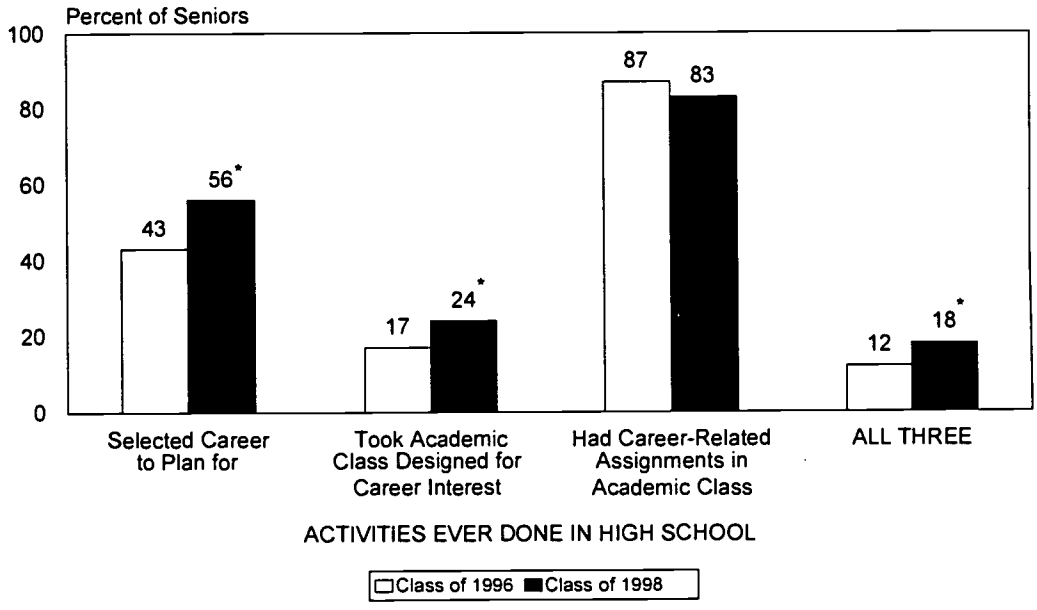
[a] The latest data from local partnerships on worksite activities are for school year 1996-1997.

Curriculum Changes Are Modest and Implemented Incrementally

The STWOA envisioned several changes in school-based curriculum, instruction, and assessment that would alter students' experiences. It aimed to bridge the gap between academic and technical instruction, in part through changes in teaching methods. The legislation also promoted career majors--the organization of students' school program around broad career areas, which were expected to span secondary and postsecondary education to encourage students' transition to college and training. At the same time, academic standards would be raised, and industry-recognized skill standards would be increasingly adopted.

- ***Career focus in curriculum is most often promoted by "career pathway" guidance.*** Structured career major programs as envisioned in the STWOA--combining academic and vocational instruction around a career or industry focus, with links to related work-based learning--are offered in about a quarter of partnership schools, but usually for relatively few students. These programs are not prevalent, in part because parents and students are wary of what seem like early career decisions and activities that might lead students away from four-year colleges. Instead, partnerships and schools have placed greater emphasis on developing guidance charts that point out which existing courses are relevant preparation for broadly defined career areas (these are sometimes called "career pathways"). Increasingly, students are encouraged to choose their elective courses using these career pathway guidance materials. The combined emphasis on career development and career pathways may be having some effect; students in the eight in-depth study states are increasingly formulating a tentative career goal and taking "career-related academics"--academic courses they view as having some content or application relevant to their career goal (Figure 4).

FIGURE 4
GROWING STUDENT PERCEPTIONS OF CAREER FOCUS FOR THEIR STUDIES



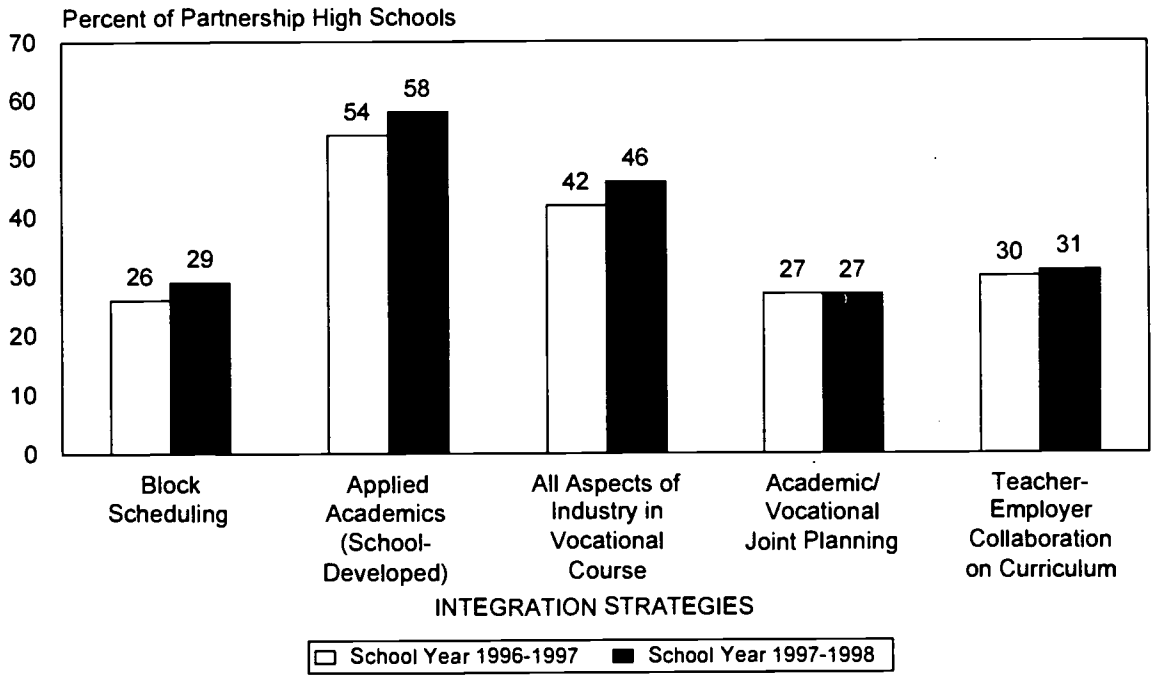
SOURCE: STW 12th-grade student survey, spring 1996 and spring 1998, Mathematica Policy Research, Inc.

* Difference between class of 1996 and class of 1998 is significant at the .05 level, two-tailed test.

- ***Curriculum integration efforts are slowly spreading, but often with thin support.*** Proponents of integrating academic and vocational instruction see this effort as a way to ensure that technical instruction includes a strong and challenging theoretical base and that academic instruction emphasizes the ability to apply theoretical knowledge. A variety of integration strategies are being pursued, some in a gradually increasing number of partnership schools (Figure 5). In many schools, however, support for these changes comes from a small core of teachers; site visits suggest that academic teachers are usually less convinced of their value than are vocational teachers.

- ***Secondary-postsecondary curriculum links have not been central in STW efforts.*** Partnership surveys suggest that, so far, coordinators place lower priority on linking students' secondary and postsecondary experiences than on other STW elements that focus on changing high school activities. Articulation agreements (allowing students to receive college credit or advanced standing for high school course work) are common, but they are a minor factor in increasing college enrollment because few students take advantage of them. Instead, career planning--a guidance function--is the most common approach to promoting postsecondary education. However, the surveys of seniors in the classes of 1996 and 1998 show no growth in the fraction of students planning to attend college.

FIGURE 5
APPROACHES TO INTEGRATING ACADEMIC AND VOCATIONAL INSTRUCTION



SOURCE: STW local partnership survey, fall 1996 and fall 1997, Mathematica Policy Research, Inc.

- ***STW implementation does not emphasize academic or industry skill standards.*** A premise of the STWOA is that the curriculum changes it promotes can help raise academic and vocational program standards and achievement for all students. Partnership districts are indeed raising graduation requirements, with a focus mostly on academics; between 1994 and 1997, almost a third of all partnership districts increased the academic credits required for high school graduation. However, teachers often view these changes, and related increases in the use of student proficiency testing, as independent of, or even in conflict with, the STWOA emphasis on applied learning and curriculum integration, which can take time away from traditional academic instruction.

  Use of industry skill standards is still uncommon and a low priority among partnership schools. Only 13 percent of partnership high schools awarded skill certificates based on industry standards in school year 1996-1997, to fewer than 4 percent of 12th-grade students--a small increase in rates from the previous year.

Some Workplace Learning Is Expanding, More for Brief Exposure than Building Career Skills

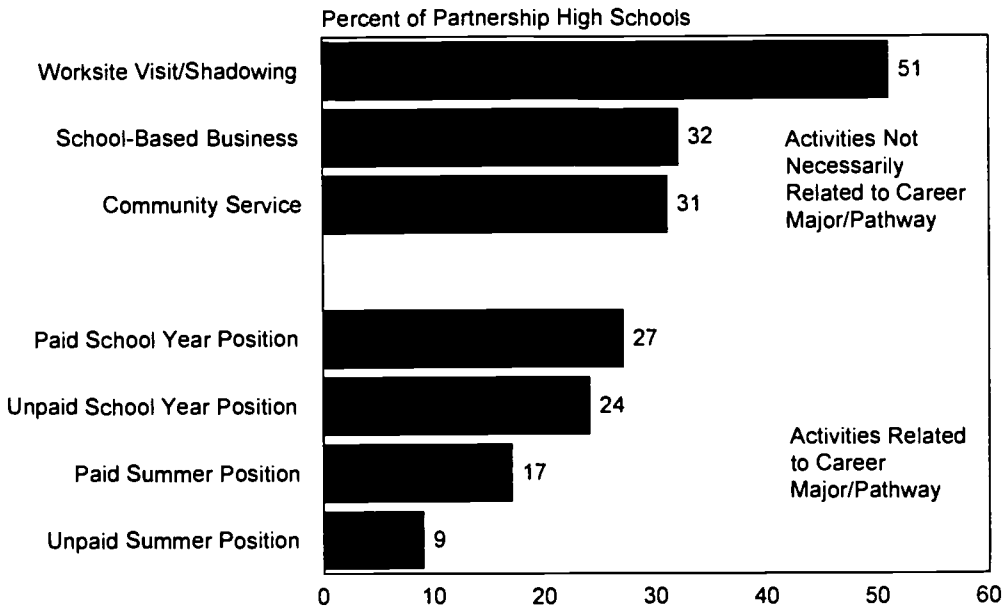
The STWOA promotes work-based learning as a way to reinforce and complement school-based learning. Various work-based activities have different purposes. Worksite observation gives students a chance to learn about careers but does not directly build employability or technical skills. School-based enterprises may not provide much information about careers but usually offer opportunities to develop management, problem-solving, and other general employability skills that employers value. The more intensive workplace activities emphasized in the STWOA--such as internships, paid work experience, and training--are meant to cultivate not only career awareness and general employability, but also specific skills and knowledge relating to a career of interest.

The STWOA emphasized the more intensive types of work-based learning. However, it gave states and local partnerships considerable latitude to develop a mix of work-based activities that reflects their resources and the interests of local employers, schools, students, and parents.

- ***Brief worksite visits and job shadowing are most prevalent.*** Short worksite observation is the most widely available work-based learning activity. By school year 1996-1997, more than 51 percent of member high schools were sponsoring such activities, which include job shadowing and worksite visits--more than any other work-based activity (Figure 6). Student participation is high; nearly two-thirds of seniors in the in-depth study states were involved in these experiences, compared to about one-quarter in school-based enterprises and in paid or unpaid workplace positions obtained through school.

- ***Students find quality workplace positions more through school than on their own.*** Students find most of their paid jobs and unpaid workplace experiences on their own. However, the student surveys provide evidence that positions students find through school offer greater learning opportunities. Students in school-organized activities had access to a greater variety of industry workplaces, spent more time in training, received

FIGURE 6
AVAILABILITY OF WORKPLACE ACTIVITIES IN SCHOOLS
SCHOOL YEAR 1996-1997



SOURCE: STW local partnership survey, fall 1997, Mathematica Policy Research, Inc.

more feedback on their performance, and identified more links between their studies and work experience.

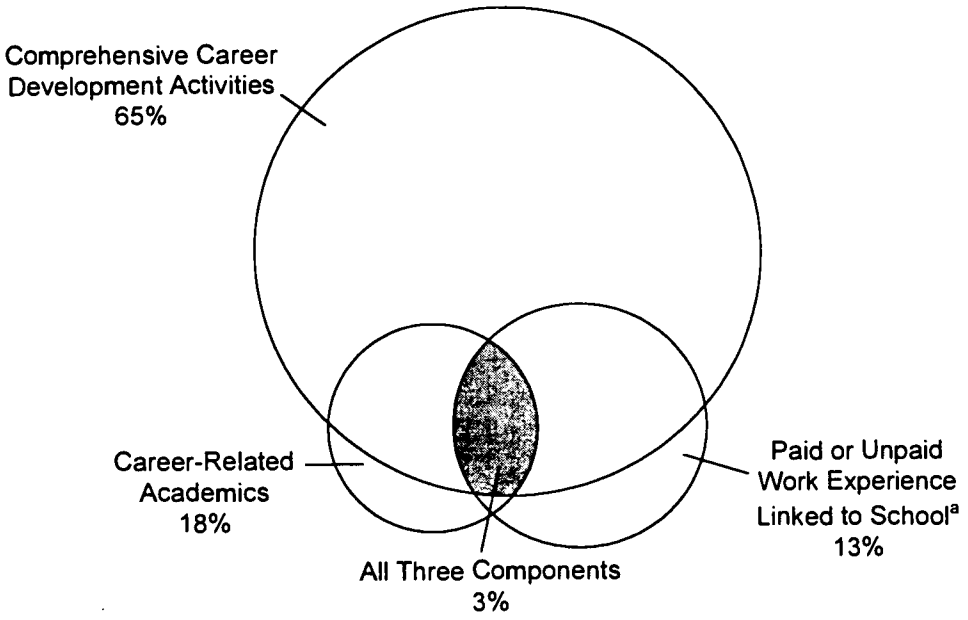
- ***Links between workplace and school have not become more common.*** Partnerships have emphasized expanding workplace activity, but their efforts have not yet yielded a measurable increase in students' participation in workplace activities with strong links to school. There is no definition in the STWOA of such links, but field observation suggested simple criteria for linking workplace activity and school curriculum that could be tested using the student survey data. Students responding to the evaluation surveys were considered to have a linked work-based experience if (1) they had some (paid or unpaid) work or training experience during high school, (2) they drew on recent worksite experience in a classroom assignment, and (3) their performance at the worksite counted toward a school grade. The fraction of students whose recent work experience satisfied these criteria actually declined from 16 to 13 percent between 1996 and 1998. This pattern may reflect partnership emphasis on worksite observation and community service, both of which are typically too brief to develop substantive links between workplace and school.

Participation in the Combination of All Three Major STW Elements Remains Low

The STW legislation aimed to do more than give students an isolated experience such as a job shadow, an internship, or a particular class. One measure of the progress of STW implementation is whether a large and diverse population of students is able to engage in a *connected* set of activities of the sort promoted by Congress: career development, a career-focused experience in school that integrates academic and technical learning, and a workplace experience that reinforces school-based learning. Evaluation data can be used to assess, over time, whether opportunities for such connected activities are becoming more available and whether more students participate.

At least so far, however, participation in all three of these STW elements remains uncommon. In the eight in-depth study states, only three percent of seniors in 1998 (compared to two percent in 1996) could be described as having had, from their own perspective, a combination of the three main elements of a comprehensive STW program (Figure 7).

FIGURE 7
STUDENT INVOLVEMENT IN KEY STW COMPONENTS



SOURCE: STW 12th-grade student survey, spring 1998, Mathematica Policy Research, Inc.

[a] Work experience is linked to school if workplace performance counts toward school grades and there are classroom assignments that draw on workplace experience.

ENGAGING A DIVERSE MIX OF STUDENTS (Chapter IV)

The emphasis in the STWOA on making STW activities available for all students has generally received a positive reception among practitioners, for two reasons. First, many educators and employers believe that exposure to careers and workplaces can benefit all students. Second, many are interested in avoiding or overcoming the stigma often attached to career-focused activities such as traditional vocational programs. By attracting a cross-section of students, STW leaders hope to enhance the actual and perceived quality of STW activities and thus broaden the range of students who are prepared for career choices and success. An important issue, therefore, is the characteristics of students who participate in STW activities. Using student survey responses and transcripts from the eight in-depth study states, the evaluation has examined the diversity of participating students with regard to academic performance, personal background, and the extent to which various groups perceive STW activities as useful after they graduate from high school.

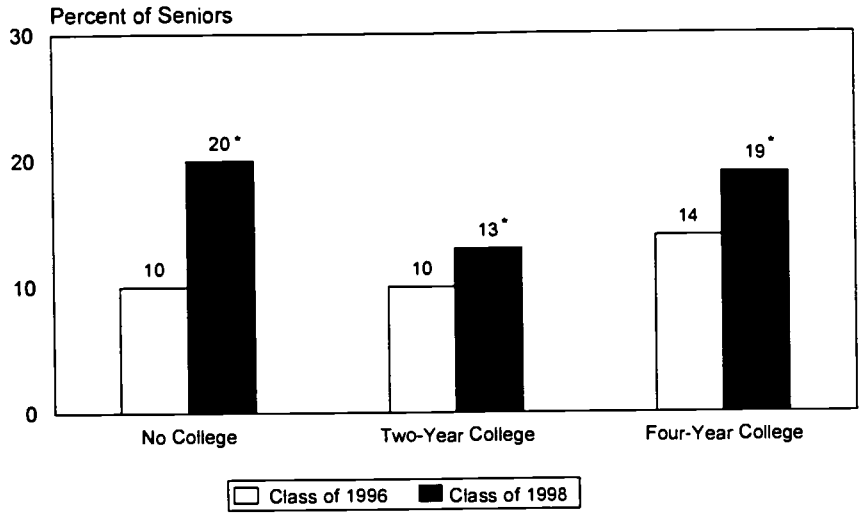
Activities Promoted by the STWOA Engage Students with Diverse Academic Performance

The STWOA stressed that STW activities should engage both "low-achieving" and "academically talented" students. Practitioners often emphasize that involving college-bound students demonstrates that STW activities do not limit postsecondary options. However, they also want to ensure that efforts to involve high-performing students and meet employers' expectations do not lead to screening that would exclude students with weaker academic achievement.

- ***1996 seniors with high and low performance participated at roughly comparable rates.*** There were no major differences in participation in the three main STW elements between students who completed a college-prep curriculum and those who did not or between groups defined by class rank, attendance, or entry to college. Looked at another way, students who participate in STW activities go on to college at rates similar to those of other students. However, in 1996, students who planned to attend four-year colleges were somewhat more likely than others to take career-related academics--classes they perceived as focused on their career goal (potentially a key feature of career majors).

- ***Participation in career-related academics has grown among non-college-bound students.*** Because guidance counselors traditionally focused on students intending to enter four-year colleges, widespread emphasis on making career planning universal has probably had the most effect on students with limited or no college plans. Among students who planned to enter postsecondary programs of less than two years or had no future educational plans, participation in academic classes they perceived as focused on their career goals doubled from 10 percent for 1996 seniors to 20 percent among the class of 1998. This growth was substantially and significantly greater than the corresponding growth among students with college plans, essentially eliminating the gap between the two groups of students (Figure 8).

FIGURE 8
CHANGE IN INVOLVEMENT IN CAREER-RELATED ACADEMICS, BY STUDENTS' POSTSECONDARY PLANS



SOURCE: STW 12th-grade survey, spring 1996 and spring 1998, Mathematica Policy Research, Inc.
* Difference between class of 1996 and class of 1998 is significant at .05 level, two-tailed test.

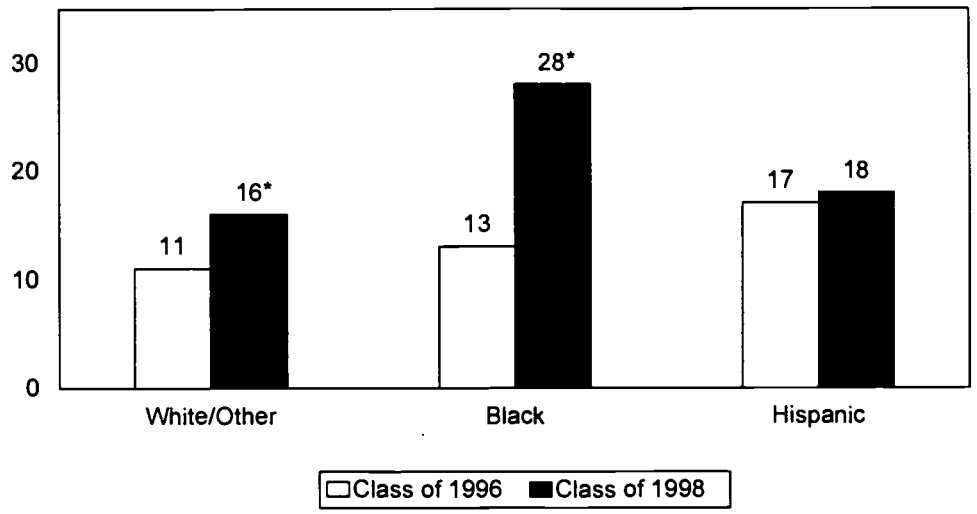
Females and African Americans Participate More Than Others in Some STW Activities

The STWOA stresses that STW activities should be accessible to students from all racial and ethnic backgrounds and to male or female students interested in programs that have traditionally attracted students of the opposite gender. Two key findings emerged from participation analysis.

- ***Females, particularly African Americans, are the most involved in school-linked workplace activity.*** Females and males had comparable employment rates in high school, but females more often had workplace experiences linked to school. This difference appears to be driven by three factors. Female students are more likely to (1) articulate a career goal; (2) get co-op jobs, which often are substantively linked to a school class; and (3) be interested in careers (such as health) that are commonly the focus of unpaid and co-op work experience linked to school. Co-op participation and interest in health careers is particularly high among African American female students. Female students are also more likely than their male peers to participate in a comprehensive set of career development activities.

- ***Career-related academics are growing in schools with large African American populations.*** Participation in academic classes that students perceive as focused on their career interests has been increasing most dramatically among African American students--from 13 percent in the class of 1996 to 28 percent in the class of 1998 (Figure 9). As a result, black students' participation significantly exceeds that of their white and Hispanic peers. This growth appears to be due mostly to the expansion of

FIGURE 9
GROWTH IN INVOLVEMENT IN CAREER-RELATED ACADEMICS, BY RACE



SOURCE: STW 12th-grade survey, spring 1996 and spring 1998, Mathematica Policy Research, Inc.

* Difference between class of 1996 and 1998 is significant at the .05 level, two-tailed test.

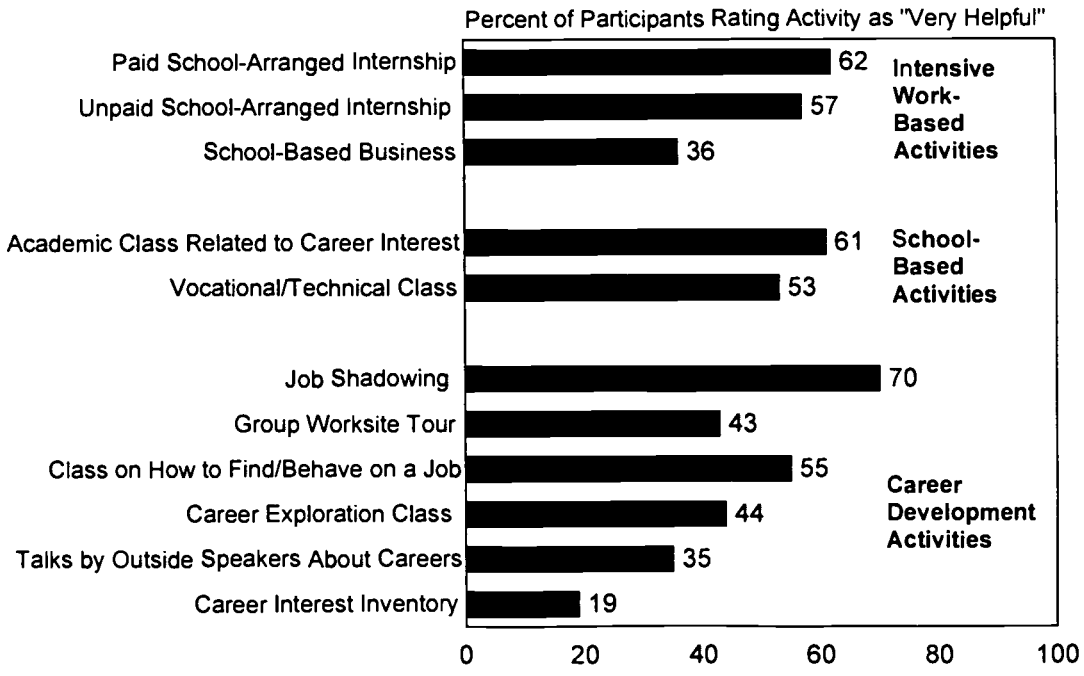
these activities on a schoolwide basis where black students are a high fraction of the student population, rather than to differences between black students and others within individual schools. Some of this expansion may be associated with the introduction of or increased emphasis on career-focused magnet programs, sometimes as part of school desegregation efforts.

Most Youth Feel That STW Activities Helped Them Clarify Career Goals

Although students' judgments of STW activities do not measure their impact, the value students attach to these activities can help partnerships weigh priorities for further implementation. Using the follow-up survey of the class of 1996 about 18 months after high school graduation, the evaluation analyzed both the extent to which students thought STW activities helped them focus their career direction and which students valued these activities most.

Students generally value the STW activities they engage in as a way to clarify their career goals (Figure 10). Most activities were rated as "very helpful" by one- to two-thirds of the students who participated in them. Particular activities had different participation rates and involved different students, so these findings should be interpreted more as a general indication of the overall value placed on STW activities than a guide to which activities partnerships should emphasize more than others. Some distinctions were found, however, that merit attention as activities are developed:

FIGURE 10
PERCEIVED VALUE OF STW ACTIVITIES IN CLARIFYING CAREER GOALS OF CLASS OF 1996



SOURCE: STW postsecondary follow-up survey, fall 1997, Mathematica Policy Research, Inc.

- ***Work-based activity was valued most it if involved one-on-one contact.*** Students gave high marks to job shadowing, paid jobs and unpaid internships obtained through school. They were less likely to view group worksite tours and school-based enterprises as helpful. These findings suggest that students respond most when they have one-on-one contact with an adult employee (which worksite tours and school-based enterprises rarely provided). More individualized experiences may also engage students more fully, since they typically require planning by the student and a postactivity report.

- ***Students valued STW activities even if they changed career goals or went to college.*** A narrow view of the STWOA is that it should promote refinement of career goals so students follow a consistent career direction after high school. However, adolescents are prone to shifting plans, and going to college exposes them to new influences that may encourage rethinking. Thus, there is some question whether those who change career goals or go to college are less likely to find STW activities in high school helpful. In fact, such students were just as likely as others to report that STW activities were very helpful in clarifying their career goals. This finding reinforces the view of many STW leaders that experiences can be helpful in clarifying career interests even when they do not increase the continuity in students' goals.

- ***Female and minority students particularly value STW activities.*** Females were consistently more likely than males to find STW activity--particularly job shadowing and paid jobs obtained through school--very helpful in clarifying career goals. African American and Hispanic students were more likely than white students to attach a high value to STW activities, particularly jobs obtained through school and their vocational classes. These differences in perception may be contributing, through word of mouth, to observed participation rate differences: high involvement of females in both brief worksite activities and more intensive school-linked jobs and internships, as well as the high and growing involvement of black students in career-related academic classes.

CONCLUSIONS AND IMPLICATIONS FOR THE FUTURE (Chapter V)

This report provides answers to the basic analytical questions posed in Chapter I, but it is also important to go beyond those questions to address specific concerns about STW implementation and its future raised by both STW proponents and skeptics. These issues relate to whether STW activities broaden or narrow students' career options, the effect of STW implementation on efforts to raise standards, the future value of the roles partnerships have played, and the likelihood that accomplishments to date will survive beyond STWOA funding.

STW Implementation Is More Likely to Broaden, Than to Narrow, Students' Career Options

Although substantial support exists for STW concepts, there is also a common concern, especially among some educators and parents, that the changes the STWOA promotes will force students into narrowly defined occupations and reduce their options for career growth and mobility. In some states, this concern focuses on fear that government and employers will choose students' career directions for them. This was clearly not the legislative intent. Moreover, the manner in which STW implementation is being pursued is unlikely to have any such effect, for two reasons.

First, STW partnerships are paying most attention to increasing students' overall awareness of career options. Educators often view this priority as important because many youth lack the personal or family resources and connections that would allow them to learn about careers other than those pursued by the people they encounter in daily life or described in the media. Although no rigorous measures exist of the effect partnerships' efforts are having on students' knowledge and choices, this major emphasis in STW implementation should be construed, if it has any effect, as widening, rather than narrowing, the options students perceive and consider.

Second, partnerships rarely implement narrowly focused occupational programs and require students to follow one. More often, they promote developing and using informative career pathway guides for students to use in selecting courses. Career pathway charts generally encompass a wide range of related careers, often grouped to reflect all those in the U.S. economy. Schools use these guides to help students understand that their current interests can lead to many future occupational possibilities. If, by using these materials, students become aware of the academic and experiential foundations that would be important preparation for a varied set of occupations, they broaden their

options. Moreover, pathway guides are dominated by schools' academic graduation requirements and primarily serve to help students tailor their elective choices to interests that could relate to future careers.

How STW Helps Raise Standards Is Unclear

STW proponents commonly argue that implementing STW systems is a way to raise educational standards for all students. The STWOA called on states and local partnerships to integrate their STW implementation efforts and resulting systems with the systems they develop under the Goals 2000 Educate America Act and its National Skills Standards Act of 1994.

For the most part, however, implementing STW and raising academic standards are occurring independently. Evidence from the STW evaluation site visits and partnership surveys suggests that states and local school districts are taking steps to raise academic standards. Although there is consistency of purpose between these efforts and STW development, the two are on largely independent paths. So far, clear strategies to integrate these initiatives (for example, by systematic attention to higher-level academic skills in workplace experiences) are hard to find, even from the perspective of teachers--those who have the most stake in coordination.

The STWOA also encourages use of industry-defined skill certificates and portfolios, but so far partnerships have not focused on them. According to the partnership surveys, about 13 percent of partnership high schools award such skill certificates, and fewer than 3 percent of high school students receive them. About 15 percent of high schools in STW partnerships require students to develop a portfolio. Portfolios are most often used to encourage students to think of their work as tangible evidence of accomplishment and as a way to display their best work in a professional way.

Regional Cooperation Fostered by Many Partnerships Is Important for Future of STW

STW partnerships that bring together schools, employers, and others on a regional scale beyond the local school district have served purposes that are likely to be important in sustaining and advancing STW implementation progress. Multidistrict partnerships have advanced the development of STW systems by (1) stimulating interest in initially less active districts through the leadership of vanguard districts, (2) providing professional development (for teachers, primarily), and (3) organizing communications with employers.

These functions will still be valuable in the future, although there may be ways to perform some of them without continuation of STW partnerships as they now exist. For example, states could play a more active role in delivering professional development activities at the local or regional level (particularly since technical assistance is already a major role for some state STW offices). Large districts might be able to commit resources from their general budgets to the kinds of professional development STW funds have supported.

However, regional cooperation through a collaborative entity is likely to be important both in the short term, to extend system-building efforts, and in the long term, to sustain some system

features. Partnerships that succeed in building a real STW system are likely themselves to become a vital part of the system, with something important to contribute beyond what their members can do on their own. Where existing Tech-Prep consortia or intermediate school districts, with their ongoing funding streams, can assume these roles, the regional functions of STW systems may continue. Otherwise, for many states and local communities, it appears unlikely that resources will be available to continue the regional collaboration on STW implementation goals.

Some Elements of STW Systems Will Continue Beyond STWOA Funding

Some aspects of the STW implementation agenda may receive sustained attention at the state level and in local schools, but others probably will not. The seed money supplied by the STWOA is likely to yield a harvest in the future, but it may be uneven when compared to the comprehensive aims of the STWOA.

Of the three main STW activities for students (career development, school-based curriculum changes, and workplace experience), career development activities probably will continue to be improved and expanded. Even before the STWOA, the curriculum of some states and many local districts already contained certain career development activities. The end of STWOA funding may not seriously curtail the promotion of those activities that occur completely in school, in part because an existing network of state and local staff is responsible for career guidance. However, some aspects of a comprehensive career development program, particularly activities at employer workplaces, require resources that may be less available once STWOA funding ends.

Efforts to advance curriculum integration and to promote a career focus in students' school programs already face challenges that could be more problematic without STW funds and the partnerships they now support. Given the low priority many partnerships already give to structured career major programs, as well as the skepticism among many parents and educators about the importance and value of vocational and academic integration, this goal will become even more difficult to achieve when resources become scarcer. Changes in schools and their curricula are likely to be driven more by widespread attention to school accountability and higher standards, with a focus on testing students' academic skills and raising graduation requirements for academic credits.

Although the STWOA emphasizes intensive workplace activities, these activities have not yet shown substantial growth, and it will be difficult to sustain any widespread effort to expand them once federal STW funding ends. Where STW implementation has focused on vocational programs, commitment and resources may be available to continue improving workplace learning for the segment of students who take these programs. The loss of STWOA funding and the dissolution of some STW partnerships, however, are likely to have a major impact on prospects for expanding internships, apprenticeships, and other extended workplace learning opportunities for the broader student population, for two reasons. First, developing and maintaining such activities is labor intensive, and many schools will lack resources to sustain them. Second, state funding and requirements that might support widespread efforts to expand intensive workplace learning are uncommon.

In just a few years, the STWOA has helped, at the state and local level, to energize educators, employers, and others with a concern for how our youth prepare for the future. STWOA funding and the efforts it has supported have given new prominence to ideas about how experiences in school and in the community can help students chart and follow a course that will help them succeed not only in education, but also beyond graduation. However, the seed the STWOA planted needs more nurturing if it is to yield the anticipated return. For now, no sustained federal interest in STW concepts has been expressed in subsequent education or workforce development legislation. Without such high-level promotion, the overall vision of a STW system may slip into the shadows of the many other competing demands on schools and teachers.

I. INTRODUCTION

Throughout the United States, important efforts are being made to strengthen the way young Americans identify career goals and develop the educational foundation needed to achieve them. These efforts are in part a response to the School-to-Work Opportunities Act (STWOA), enacted in May 1994. The STWOA provided five years of seed money to states to help them create school-to-work (STW) systems--a combination of state initiatives and local partnerships of schools, employers, and other groups and individuals. Under the STWOA, a total of nearly $1.5 billion was appropriated in fiscal years 1994-1998 for grants to states and local partnerships.

The legislation called on these local partnerships to develop ways to use workplaces as active learning environments for students, link school- and work-based learning, integrate academic and vocational instruction, and motivate students to meet high standards. The experiences the STWOA promoted, it was hoped, would help students formulate career goals and pursue educational paths and employment to reach these goals. As a result, the STWOA would help raise the quality of the U.S. labor force and the competitiveness of the United States in the world economy.

The legislation also called for a national evaluation of the progress that states and local partnerships make in implementing STW systems. The evaluation is being conducted under contract to the U.S. Department of Education (ED), with the support of the U.S. Department of Labor (DOL) and the national School-to-Work office. It is being carried out by Mathematica Policy Research, Inc. (MPR) with assistance from two subcontractors: MPR Associates, Inc. and Decision Information Resources, Inc. This report to Congress follows two earlier annual evaluation reports.[1] There will be further reports from the evaluation as it continues.

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[1]A list of earlier evaluation reports and scheduled future ones is presented at the end of this report.

This report is organized around three broad questions, addressed in the next three chapters:

- What state-local infrastructure of policies and partnerships has been established to further the implementation of a sustainable STW system, and how likely is that infrastructure to persist beyond federal STWOA funding?
- In what ways and to what extent have STW partnerships changed students' educational experiences?
- Who is participating in the school and workplace experiences that the STWOA promotes?

A final chapter summarizes the evaluation's major conclusions to date and suggests implications about the further development of STW systems. Table I.1 presents a brief summary of the major conclusions.

The rest of this introduction provides background for the analyses presented in the following chapters. The origins and provisions of the STWOA are reviewed in Section A, with special attention to two diverging views of the relative priority of legislative provisions that have shaped implementation and thus our findings (Section B). The purposes and design of the evaluation are described in Section C. Section D presents a guide to the rest of the report.

A. ORIGINS AND PROVISIONS OF THE SCHOOL-TO-WORK OPPORTUNITIES ACT

The STWOA addressed concerns about the educational preparation of American youth for their future careers and about related concerns for the productivity and competitiveness of the economy as a whole. Congress was responding to research findings that many young Americans were entering the workforce without the education or skills they need for successful careers in an increasingly demanding and technology-based workplace. In 1996, for example, 14 percent of all Americans ages 18-24 who were not still in school had failed to earn a diploma or general educational development (GED) certificate (McMillen 1997). Although high school graduates have

TABLE I.1

MAIN FINDINGS ON SCHOOL-TO-WORK IMPLEMENTATION

States have created widespread local partnerships, but their future is uncertain.

By fall 1997, 34 states had formed 1,152 partnerships, covering 83 percent of their secondary school districts. These partnerships play important STW capacity-building roles in many communities, even with modest funding ($4.32 per student). When STWOA funding ends, however, many partnerships are likely to dissolve for lack of resources. Funding commitments by states or partnership members are uncommon so far. Prospects for the continuation of partnerships are best when they are built on preexisting, funded collaborations such as Tech-Prep consortia, which are the foundation for about a quarter of all partnerships. (See Chapter II.)

Greater emphasis is being placed on broad career exposure and planning than on intensive career-focused programs or work experience.

Of the major types of student activities the STWOA promotes, those that address career development objectives--career awareness, exposure, and planning--are most available and engage the most students. About two-thirds of students participate in a variety of these career development experiences. Student involvement in career-related academic classes and intensive workplace activities, such as internships and apprenticeships, is much less common and growing slowly. Few students--about three percent of 1998 seniors--participate in a combination of the three major STW elements. (See Chapter III.)

Diverse students are involved in STW activities and find them helpful in clarifying goals.

The experiences the STWOA promotes engage students with both higher and lower academic performance. Students who participate in high school STW activities enroll in college at rates similar to the rates of those who do not participate. Looking back 18 months after high school, students generally felt their participation had helped them clarify their career goals, even if they were in college or had already changed their minds about a career interest. (See Chapter IV.)

Although progress toward the ambitious goals of the STWOA is uneven, STW implementation is more likely to broaden than narrow students' career options.

STW implementation emphasizes broad career exposure rather than narrow occupational programs. Thus, it is more likely to widen the career options students consider than to limit their career and educational choices. Even where more intensive career-focused programs are implemented, they provide flexibility and ensure that students meet graduation requirements. However, STW experiences for students do not appear so far to be central to state efforts to raise academic standards and could face declining support when STWOA funding ends. Career development activities in schools are most likely to expand, but skepticism among some parents and educators may limit emphasis on career majors and integration of academic and vocational instruction. Without STWOA funding and the local partnerships it supports, it will be difficult to maintain and expand workplace activities such as job shadowing, internships, and apprenticeships that are time-consuming to create and monitor. The seed planted by the STWOA needs nurturing if anticipated returns are to be achieved and sustained. (See Chapter V.)

been starting postsecondary education at increasing rates, only about half of those who enroll earn any credential within five years (Berkner 1996). Moreover, the earnings gap is widening between people with a college education and those with only a high school education or less (Economic Policy Institute 1998). Without good skill training or postsecondary education, our youth face worsening labor market prospects. In passing the STWOA, Congress was also acting to ensure the future vitality of the U.S. economy, which depends on a highly skilled labor force whose members can solve problems, adapt to and use new technology, and work effectively in teams.

Concerns about the economic prospects of many of our youth traced back to the lack of comprehensive, coherent systems to help Americans make transitions from high school to a career or to the further education or training that would prepare them for a career. Congress saw such systems as particularly important for the 75 percent of American youth who enter the workforce without a four-year college degree. Policymakers' interest was fueled in large part by reports on European apprenticeship systems, which combine school-based instruction and workplace training for occupations that do not require university education. Creation of the STWOA was motivated largely by the belief that combining school- and work-based learning, modeled after traditional apprenticeships that integrate theoretical instruction with structured on-the-job training, could improve students' motivation, attitudes toward work, and skill acquisition. This expectation was grounded in earlier research by cognitive psychologists and educators on the value of learning new skills in the context in which they are applied (Raizen 1989).

The STWOA was thus conceived to support state and local development of systems made up of programs that would give students this kind of learning experience. The legislation gave state and local leaders wide discretion in designing and establishing STW programs and systems. In general, however, it was expected that states would promote STW concepts, develop model curricula, and provide technical assistance and labor market information to local partnerships. States were

expected to ensure state-level cooperation among agencies, educators, employers and business groups, organized labor, and elected officials. From their federal STW grants, states would award grants to local partnerships formed by school districts, agencies, employers, postsecondary institutions, labor organizations, students, and (potentially) others.

The STWOA charged states and local partnerships with creating three main components of a STW system:

- ***School-Based Learning.*** Partnerships were to help change the organization and focus of teaching and learning. Schools would create "career majors," and students would select their major by 11th grade. The career major would integrate academic and vocational instruction around a career area or industry the student planned to enter and would link high school studies to postsecondary education or training. In earlier grades, students would engage in career awareness and exploration activities to help them formulate career goals and choose a career major. School-based learning was to be geared to the highest academic standards and would give students a chance to earn portable, industry-recognized skill certificates.

- ***Work-Based Learning.*** Partnerships were to create opportunities for students to enter planned programs of work experience and training that would be coordinated with their school-based studies and linked to the career major they had chosen. Work-based learning was to involve progressively more advanced skill instruction and expose students to all aspects of the industry they planned to enter (rather than only to a narrow occupation).

- ***Connecting Activities.*** The STWOA stressed coordination of the efforts of partnership members. For example, partnerships or particular members would have to recruit employers to participate, match students with work-based learning opportunities, help employers work effectively with students, and assist schools and employers in integrating their instruction.

Congress expected that local STW partnerships would build on and enhance existing programs and develop new opportunities for students. The STWOA recognized that state and local programs and reform initiatives already under way (some supported by other federal funds) would be parts of a comprehensive STW system. These programs and initiatives included Tech-Prep programs, career academies, youth apprenticeships, cooperative education, school-based enterprises, dropout

prevention programs, and collaborations between schools and employers. Although Congress valued these programs, it urged that they be administered as a more coherent whole. Local partnerships would provide a forum for coordinating such programs, identifying missing system elements, and promoting the capacity of partnership members to improve and expand learning opportunities for students.

B. DIVERGING VIEWS OF SCHOOL-TO-WORK PRIORITIES

The STWOA reflects the convergence of different objectives and priorities, and two diverging conceptions of its purpose have emerged among STW leaders, educators, and employers across the country. One emphasizes changes to benefit a particular segment of the student population, while the other emphasizes reforms that will affect all students.

Much of the impetus for the STWOA came from special concern about American youth who might not attain four-year baccalaureate degrees or even go to college. The legislation's emphasis on structured programs resembling apprenticeships reflects this concern. The program model the STWOA promotes involves planned job training and work experience, integration of academic and vocational learning, and students' selection of a career major to prepare for a first job in a chosen occupational cluster or industry. It also involves a link between high school and at least one or two years of further postsecondary education or training. Thus, provisions of the law and definitions included in it suggest that it aims to help such students find career-oriented employment right after high school or succeed in two-year or shorter postsecondary programs that will provide a path to a productive career.

The STWOA also emphasizes broader inclusiveness, however. It stresses that the programs STW systems promote should be available to all students--including gifted students, low-achieving students, dropouts, and youths with disabilities. Congress intended to provide "opportunities for all

students to participate in high-quality, work-based learning" and to "help all students attain high academic and occupational standards" (STWOA, Section 3). There was no mandate, however, that all students should follow the structured program model. Instead, Congress intended to provide "interested students" the chance to select a career major and "participating students" an opportunity to complete one (STWOA, Title I, Sections 101, 102). The law specifically refers to some activities that are potentially relevant to students with any level of ability, educational aspiration, or interest. For example, to help students identify their interests and goals, STW programs are to include career awareness and exploration beginning in seventh grade at the latest. The activities the law promotes, moreover, are intended to develop not only skills related to a particular career, but also general workplace competencies and positive work attitudes, which are important for all youth.

The STWOA thus can be viewed in two ways. On the one hand, it can be read as the charter for a network of carefully structured programs serving a segment of the student population whose career prospects are of particular concern--those who are unlikely to attain four-year college degrees. This interpretation has given rise at the local level to initiatives closely related to vocational programs and targeting the students who choose them.

On the other hand, the STWOA can be seen as an outline of desirable reforms in educational organization and practices, which--singly or in various combinations--would benefit all students, only some of whom might be taking part in the full program model described in the legislation. The national School-to-Work office, created by ED and DOL to fulfill the joint federal administrative responsibility given to them under the STWOA, has energetically promoted this broader conception of the legislation. This more global and less structured view of how elements of the STW legislation can be applied in American schools is in keeping with the emphasis in the legislation on allowing states and local partnerships the flexibility to tailor implementation approaches to local circumstances. Prominent organizations active in promoting STW concepts (such as Jobs for the

Future) also envision a "school-to-career movement" that uses ideas like those set forth in the STWOA as a basis for revitalizing schools in ways that are relevant to all students (Goldberger and Kazis 1998).

These two interpretations of the legislation give rise to different (and sometimes competing) priorities. Emphasizing structured programs for youth not headed for four-year colleges implies concentrating resources to create coherent experiences for particular participants, combining all the elements listed in the STWOA, and usually associated with vocational programs. The broader reform interpretation implies devoting resources to changing aspects of education that may affect all students (even if indirectly or marginally), rather than creating a comprehensive program for certain students. Some partnerships are focusing their attention on promoting structured programs, some on broader reforms, and some on a combination of the two approaches. Most states have voiced support for STW as a reform affecting all students; nevertheless, some give lead roles to vocational education staff, and most actively promote program initiatives associated with vocational education. Similar contradictions sometimes emerge at the local level. Emphasizing structured programs related to vocational education sometimes undermines efforts to portray the STWOA as potentially benefiting all students. The evaluation of STW implementation has been designed to provide indicators relevant to both STW development approaches.

C. PURPOSES AND DESIGN OF THE EVALUATION

The main purpose of the overall STW evaluation is to document the progress of STW implementation and the extent to which students' experiences are changing as implementation progresses. The evaluation addresses four key questions, with four evaluation components:

Evaluation Questions	Evaluation Components
Have states and local partnerships created ***coherent STW systems*** of connected, sustainable practices and programs? How do STW systems ***change what students do*** at the elementary and secondary education levels? How do ***postsecondary paths*** change as STW systems are developed? Are the activities and practices the STWOA promotes adopted on a ***wide scale?***	***Surveys of all local partnerships*** in late 1996, 1997, 1998, and 1999[2] ***In-depth case studies*** of eight states and a sample of 39 local partnerships in 1996, 1997, and 1999 ***Survey of students*** in these eight states: 12th grade surveys in 1996, 1998, and 2000, and postsecondary followup ***Analysis of high school transcripts*** for the student sample, to determine which segments of the population participate in STW activities

This report draws on some, but not all, of the data that will eventually be collected:

- The 1996 and 1997 local partnership surveys, which achieved response rates of 91 percent (828 completions) and 87 percent (998 completions), respectively[3]
- Two rounds of visits to 39 local partnerships, in spring 1996 and in spring and fall 1997
- Surveys of random samples of 12th graders in the eight in-depth study states in spring 1996 and 1998, with completion rates of 80 and 83 percent (2,203 and 2,349 interviews in the two years, respectively) and a fall 1997 follow-up survey of the class of 1996 sample, with a completion rate of 81 percent (1,776 completed interviews)
- Analysis of high school transcripts for the 1996 student sample

In addition to these formal data collection components, the evaluation team has benefited from informal contacts with STW leaders from most of the grantee states. These contacts have served as

[2]The original evaluation design called for partnership surveys in 1996, 1997, and 1999. The government added a 1998 survey to improve the continuity of findings.

[3]Appendix A presents response rates by state.

a basis for refining the conclusions reached in the eight-state in-depth study and for guarding against interpretations of the evaluation data that are contrary to the experiences of other states.

The evaluation findings can be considered with those of other studies, most notably the ongoing data collection and analysis conducted under the aegis of the national School-to-Work office to create "progress measures." The progress measures are based on annual surveys of partnerships conducted through the state STW offices. The national evaluation results presented here are from an independent study that incorporates not only data reported by partnerships, but also analysis of survey and transcript data on random samples of students. On an important range of issues, the main themes of the two ongoing studies are consistent, as noted at some points later in this report.

Although this is the third in a series of evaluation reports, it is still a relatively early snapshot of implementation efforts and the evolution of student activities, since little time has passed relative to the typical pace of broad change in education. The final stages of the evaluation will provide a stronger basis for judging the consequences of STW and the movement to which it contributes. In addition, generalizing about STW implementation results from the evaluation data must be done cautiously because the data do not encompass all implementation experiences. The local partnership surveys draw on the experiences of 34 states.[4] The in-depth case studies include a limited number of local partnerships in just eight states.[5]

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[4]By mid-1997, 37 states had received implementation grants, and local partnerships had been funded in 35. However, one state refused to participate in the partnership survey. The 1997 survey thus included 34 states. Six more states have now received grants; the partnership surveys in 1998 and 1999 will seek to include them, as well as the remaining states when they receive grants.

[5]The eight states--Florida, Kentucky, Maryland, Massachusetts, Michigan, Ohio, Oregon, and Wisconsin--were chosen to include diversity in geographic region, degree of urbanicity, and when they received their first STW implementation grant. In addition, a conscious choice was made to choose states judged to be at different stages of STW implementation.

The evaluation was not designed to determine the impact of STW systems or partnerships on student outcomes. The student sample is drawn from the entire 12th-grade population in the eight in-depth study states--whether or not they participated in STW activities--to allow description of overall student activities and how they change over time. However, the evaluation provides no basis for comparing educational or employment outcomes for participants with outcomes of a comparable group unaffected by STW implementation. No such comparison is possible because, in most partnerships, at least some of what is described as STW implementation potentially affects all students.

Nevertheless, the evaluation can help us understand the extent to which a STW system is being created, and how, at least in eight states, students' experiences are changing due to STW implementation and to other changes in education and the economy. There is no standard definition of a STW "system," and Congress did not specify one in the STWOA. However, the intent of the STWOA was not simply to create and expand particular programs serving their own discrete target groups, but to foster a more coherent, comprehensive, and coordinated set of diverse opportunities accessible to and benefiting a major portion of the American student population. We have translated this goal into specific criteria that can be used to describe STW systems (some observable at the state level and some at the local partnership level), drawing on site visit observations, as well as on partnership and student survey data:

- ***Breadth of Participation.*** Do local partnerships engage all of their member schools? Do employers participate in significant numbers? Do employers come from varied industries? Do postsecondary and other community entities play active roles? Do large numbers of students, from diverse backgrounds, become involved in the activities the STWOA promotes?

- ***Consistency.*** Are state policies to promote the school- and work-based elements of a STW system central to and consistent with overall goals for educational improvement and workforce development? Do members of local partnerships adopt and adhere to

clear standards so that the school-based and workplace activities available to students are of consistent quality and value?

- ***Connectedness.*** Are STW activities for students available in a progression that leads students from one stage to another, creating opportunities to refine career interests and acquire more advanced skills? Are partnership members acting in collaboration as they develop and operate STW program components?

- ***Continuity.*** Do partnerships and their members adopt policies and procedures to make STW activities established practice? Do the activities the STWOA promotes become routine, so they can continue beyond early bursts of enthusiasm and withstand disruptions such as staff turnover?

- ***Sustainability.*** Do states and local partnerships have the resources to continue programmatic features and institutional linkages beyond federal STW funding? Are the policies and programs that STW reforms created central to the function of schools? To what extent do employers make STW activities a part of their routine operations?

These criteria for judging the emergence of a STW system have shaped the evaluation's approach to analyzing data collected and interpretation of the results.

D. ORGANIZATION OF THE REPORT

Each of the next three chapters of this report focuses on a particular set of questions:

- ***Chapter II: Creating a School-to-Work System Infrastructure*** describes the institutional aspect of STW implementation--the infrastructure of local partnerships and state policies and support, drawing on data from the partnership surveys and case study site visits. Local partnerships are the means by which many connecting activities defined in the STWOA are accomplished. Local partnerships and state policies are also potential factors in determining whether STW systems are sustainable in the future after federal funding expires and whether STW systems achieve any degree of consistency.

- ***Chapter III: Changing Students' Educational Experiences*** focuses on how partnerships are seeking to change the three main types of student activity the STWOA targets (career development, school-based learning, and work-based learning) and how students' participation in them is changing. Data from the partnership surveys are used to assess the availability of the activities in partnership schools. Student survey data and insights from site visits help describe the extent to which high school students are becoming involved in STW activities--in each activity separately or in a connected way, by participating in all three activity types the STWOA promotes.

- ***Chapter IV: Engaging a Diverse Mix of Students*** addresses a crucial question that arises from the two interpretations of the STWOA. Survey and transcript data help to clarify whether participants in career development, career-focused programs of study, and work-based learning linked to school are from all or only certain segments of the student population. Participation rates are compared for student subgroups based on postsecondary education plans and actual enrollment, degree of involvement in vocational education, gender, and type of geographic location. Data from the postsecondary survey is used to examine which students perceive their high school involvement in STW activities as particularly helpful to them.

Finally, Chapter V summarizes and interprets the evaluation findings and addresses some challenges facing STW leaders. This chapter suggests answers to questions at the core of public debate and uncertainty about the future of STW systems. Does STW narrow students' options or expand them? How complementary are STW implementation efforts and other school reforms? Most important, will the movement the STWOA inspired leave permanent changes and momentum for further progress when federal STW funding ends?

II. CREATING A SCHOOL-TO-WORK SYSTEM INFRASTRUCTURE

The STWOA calls for partnerships at the state and local levels to lead the development of STW systems. These collaborations are expected to coordinate the efforts of educators, the private sector and labor unions, and parents, students, and community groups. Through state and local policies and practices, partnerships are intended to promote new institutional relationships that can, in turn, help improve student learning--both at school and at employer workplaces.

The local partnerships and state agencies involved in these collaborations form an infrastructure for STW implementation. The success and significance of STW implementation may depend on the features and functions of this infrastructure and the extent to which it can persist beyond the period of federal funding. The evaluation has reached three main findings on these issues:

KEY FINDINGS ON THE STW INFRASTRUCTURE

- ***States have played supportive, rather than prescriptive, roles in stimulating STW development.*** Interagency committees and administrative teams at the state level provided initial leadership and continue to offer assistance to local partnerships. Local educators, however, sometimes perceive STW reforms as conflicting with the pressures posed by state policies promoting school accountability for academic performance.
- ***Local partnerships are widespread, diverse, and increasing in number.*** Partnerships cover about 80 percent of school districts in grantee states. Modest funding levels encourage partnerships to play capacity-building roles, with educators generally leading these efforts. Employers are increasingly involved, but college participation (beyond membership on governing boards) remains limited.
- ***State STW teams, and at least some local partnerships, will likely be sustained in the short run beyond STWOA funding.*** States appear committed to some level of ongoing STW oversight. Survival of local partnerships and their functions is most assured when they are built on preexisting, funded collaborations such as Tech-Prep consortia, which provided the foundation for about a quarter of all STW partnerships.

This chapter examines three questions about this infrastructure of collaboration at the state and local level:

- How have states organized their efforts and defined their roles in promoting STW implementation?
- What are the important features of local STW partnerships, and what roles do they play?
- How durable is the infrastructure of STW partnerships likely to be after STWOA funding ends?

A. HOW HAVE STATES ORGANIZED TO SUPPORT STW DEVELOPMENT?

The STWOA gives states influence in stimulating and shaping STW system development. Key education and workforce development agencies, as well as representatives from other state-level groups, are expected to work collaboratively to create a statewide infrastructure for STW implementation. This infrastructure could include state-level policies relevant to STW systems, an administrative structure, and outreach and support activities to help build local capacity for STW reforms.

The breadth of the state infrastructure may be influenced, in part, by the duration and level of STWOA funding states receive. The STWOA offers states grants for up to five years to help organize their efforts and support the creation of STW partnerships at the substate level. In keeping with the legislation's "venture capital" objective, state grants are modest in the context of overall education spending and other federal education investments. For example, the 37 states awarded STWOA implementation grants between June 1994 and June 1998 received an average of about $7 million each year. In contrast, in fiscal year 1996, those same 37 states received an average of $126 million in federal funding under Title I of the Elementary and Secondary Education Act to help low-achieving students, and overall education expenditures amounted to an average of about $6 billion

per state (Table II.1).[1] The short-term, modest nature of STWOA funding levels, already declining in many states by 1998, underscores the congressional intent that the grants be only partial support for states' STW agendas.[2] In fact, the legislation encourages state leaders to align STW implementation with other related education and workforce development initiatives and funding streams.

States have established governance and administrative structures to oversee distribution of this funding, coordination with other initiatives, and overall STW planning and policy making. Congress mandated the creation of broad partnerships at the state level but did not specify which agency should administer STWOA funds. Instead, the legislation gives governors discretion to define a state STW governing body, choose a STW fiscal agent, and create a team with administrative responsibilities for supporting STW development. Four aspects of state-level organization appear likely to influence the pace, direction, and longevity of STW implementation:

- Effectiveness and usefulness of state STW governance committees
- Choice of an agency to oversee STW administration
- Roles state agencies play in STW development
- Linkages between state education policies and STW implementation

This evaluation is somewhat limited, by its design, in its ability to fully capture the diversity of state STW infrastructure and state-level implementation approaches. The primary focus of the

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[1]States must distribute an increasing share of STWOA grant funds to local partnerships over the first three years of their grant: at least 70 percent, 80 percent, and 90 percent. A minimum of 90 percent of the fourth- and fifth-year grants must also go to local partnerships.

[2]State grants are distributed on an annual basis, with amounts rising for the first two years and declining for the remaining three years.

TABLE II.1

ANNUAL STWOA GRANTS, FEDERAL TITLE I FUNDING, AND TOTAL EDUCATION SPENDING IN GRANTEE STATES
(in Dollars)

State	STWOA Grant Average Annual FY 1994-1998	Federal Title I Grant FY 1996	Total Education Spending FY 1996
Alaska	1,950,000	22,498,000	1,051,296,000
Arizona	5,400,000	87,262,000	3,331,835,000
California	32,850,000	691,965,000	27,521,544,000
Colorado	6,000,000	57,264,000	3,315,190,000
Connecticut	4,950,000	45,962,000	4,321,000,000
Florida	13,650,000	252,802,000	11,469,259,000
Hawaii	2,550,000	16,056,000	960,400,000
Idaho	2,925,000	22,888,000	1,042,161,000
Indiana	7,950,000	92,514,000	5,559,000,000
Iowa	5,625,000	42,509,000	2,743,145,000
Kentucky	5,500,000	109,184,000	3,460,737,000
Louisiana	6,450,000	156,947,000	3,461,971,000
Maine	2,750,000	24,459,000	1,271,792,000
Maryland	6,300,000	72,257,000	4,926,216,000
Massachusetts	7,562,500	103,185,000	6,522,008,000
Michigan	11,000,000	261,032,000	10,735,664,000
Minnesota	5,700,000	69,899,000	4,857,100,000
Missouri	6,900,000	98,868,000	4,172,801,000
Nebraska	3,750,000	28,478,000	1,658,725,000
Nevada	2,850,000	15,994,000	1,286,767,000
New Hampshire	3,187,500	13,604,000	1,184,025,000
New Jersey	8,250,000	118,721,000	11,548,068,000

TABLE II.1 *(continued)*

State	STWOA Grant Average Annual FY 1994-1998	Federal Title I Grant FY 1996	Total Education Spending FY 1996
New Mexico	3,300,000	49,780,000	1,823,809,000
New York	13,750,000	515,108,000	23,748,287,000
North Carolina	7,500,000	111,143,000	5,845,439,000
Ohio	13,500,000	247,970,000	10,396,689,000
Oklahoma	4,800,000	69,293,000	2,951,191,000
Oregon	4,125,000	66,750,000	3,028,000,000
Pennsylvania	9,750,000	258,813,000	12,300,000,000
Rhode Island	2,850,000	17,931,000	1,071,151,000
Tennessee	7,050,000	100,063,000	4,264,551,000
Texas	15,388,500	515,462,000	19,658,698,000
Utah	3,600,000	28,066,000	1,739,255,000
Vermont	2,625,000	13,469,000	706,280,000
Washington	6,450,000	94,508,000	5,613,481,000
West Virginia	3,450,000	57,100,000	1,763,439,000
Wisconsin	6,187,500	101,937,000	5,435,968,000
Overall Total	**258,376,000**	**4,651,741,000**	**216,746,942,000**
Average	**6,983,135**	**125,722,730**	**5,858,025,459**

SOURCE: National School-to-Work Office and National Center for Education Statistics.

evaluation is on local STW implementation. However, some information has been gathered about the nature of state roles and efforts in developing STW systems and the challenges grantee states have already faced in moving these efforts forward. This information and the analysis of it are based primarily on eight states; however, they raise issues likely to be of broader concern to all states.

1. Interagency STW Governance Was Important Initially, but Its Role Is Diminishing

States have generally created structures for STW development that serve three purposes. First, collaboration among key state agencies and groups is achieved most often through the establishment of governance committees and boards. Second, ongoing support and technical assistance to local communities are provided primarily by a state STW administrative team, often housed in a particular agency. Finally, leadership for STW system building can be taken on by the board (or individual members), the STW administrative team, or both.

Agency collaboration has been an important first step for most states in their STW planning and implementation. Bringing together high-level representatives from state departments responsible for education, workforce development, and economic development was necessary early in the process to build broad support and develop a vision for STW initiatives. Key agencies, for example, were often asked to commit resources, adopt policies to support STW development, or promote STW concepts to their constituencies. Decisions had to be made about how particular elements of STW systems would be designed and affect students. In addition, federal approval of applications for state STWOA implementation grants required demonstration of active and shared support for STW from relevant state agencies, as specified in the legislation. Most states formalized this high-level interagency collaboration by establishing a STW advisory council or other governing board to oversee STW system development.

Over time, however, the momentum of these formal governance arrangements in some states has diminished. In some of the eight in-depth study states, by the third year of their STWOA funding, the originally convened state-level STW governing bodies have disbanded or meet too infrequently to provide ongoing input into STW policy or guidance. Other states have officially placed interagency STW oversight under the state Human Resources Investment Council or state workforce development boards. In these circumstances, STW is one of several state initiatives that must be discussed and compete for the board's attention and resources.

The decreasing vitality and distinctiveness of STW governance and policy structures may not adversely affect STW progress, however. In some states, the decline in high-level collaboration reflects a similar decline in state leadership and attention to STW system building. In other states, individual state agencies continue energetically to carry out pieces of a STW agenda, even without a highly visible governance structure. Across the eight in-depth study states overall, some ongoing STW state support and guidance is occurring, but it does not seem to depend on the extent of high-level agency collaboration and decision making. Instead, most states rely on a STW office and line staff to handle the day-to-day aspects of STW development. Moreover, if certain STW priorities become institutionalized in education and workforce development initiatives and practices, governance structures dedicated to STW systems may be less necessary. At this point, it is still early to judge how the diminishing role of STW interagency governance will affect the future progress of STW reforms.

2. Choice of State Administrative Leadership Can Affect Perceptions and Emphasis of STW

Governors choose an administrative vehicle to oversee the development of STW systems. State inter-agency collaboration and STW governing bodies are expected to include diverse members. However, an administrative entity must be responsible for the day-to-day activities of funding and

communicating with local partnerships and coordinating the work of agencies and other state-level groups. Governors have exercised strong influence over the course of STW implementation. in part by deciding where to place the STW office. Their decisions, as illustrated by those made in the eight in-depth study states, have affected STW initiatives in three ways:

- ***Greater resources are available when STW is in existing agency.*** Placing administration and leadership in an existing state agency seems to be most effective in leveraging expertise and garnering administrative resources on behalf of STW systems. When the STW office is part of a larger department (as in most of the in-depth study states), it is able to draw on the department's personnel and materials and to have the steady support of that agency's leaders. On the other hand, establishing an independent STW office--usually in the governor's office--avoids favoring a particular agency and underscores the priority of STW. However, independence can leave the office without the clout and administrative resources to effect change in procedures or policies within the relevant executive agencies. In part, these challenges led Massachusetts to move its originally independent STW office into the state Department of Education.

- ***Agency home for STW indicates implementation emphasis.*** The type of agency--education or workforce development--that houses STW and its primary staff gives some indication of the state's relative emphasis on expanding workplace activities or on developing school-based components such as career majors, academic-vocational integration, or career guidance. All states address aspects of both school- and work-based activities and involve cross-agency collaboration. However, states with STW administrative leadership in the education department (for example, Florida, Maryland, and Oregon) appear to focus more heavily than other states on school-based changes, in part by emphasizing professional development for teachers and counselors on curriculum and assessment. In contrast, states in which the workforce development agency has more day-to-day responsibility for STW (Michigan and Wisconsin) have focused more on youth apprenticeship and other work-based opportunities.

- ***Public attitudes toward STW may be affected.*** Placement of administrative responsibility in a particular agency or unit within an agency can also influence public perceptions toward STW implementation. Where direction and guidance come from state workforce development or labor departments, for example, teachers sometimes view STW development as distinct from education reform priorities. Moreover, those agencies' association with initiatives targeted to disadvantaged youth, such as the Job Training Partnership Act (JTPA), can undermine the message that STW is appropriate for a wide group of students. Similarly, STW leadership under the auspices of the vocational education division has, in some states, led to some stigma and a lack of support from academic teachers for the broader concept of STW reforms.

3. State STW Teams Play Supportive, Rather than Prescriptive, Roles

The STWOA gives states broad latitude in defining their vision of STW systems and the role they play in guiding local efforts. The legislation specifies key components that all STW programs and initiatives are expected to include, and states have passed along these definitions to local partnerships. In general, however, state teams are promoting local STW development but are not prescribing any particular STW implementation approach. Instead, state agency STW teams have taken on three supportive functions: (1) providing funding and technical assistance to local partnerships (sometimes using these to guide implementation in particular directions), (2) providing professional development opportunities and tools to aid implementation, and (3) conducting state-level outreach to encourage the participation of key groups in STW implementation.

Guidelines for local implementation are usually flexible, although state priorities often get targeted funding. All states use the federal legislation's definition of "School-to-Work Opportunities Basic Program Components" (STWOA Title I) as a starting point for guiding local implementation. Most require local partnerships to report on implementation progress according to these program elements. Among the eight in-depth study states, some have identified a preferred way for combining program elements (for example, in a youth apprenticeship model) or defined some components more specifically than others (for example, by disseminating a comprehensive, detailed career development program).

However, the eight-state in-depth study suggests that most states do not (and perhaps cannot) insist on strict local compliance with state implementation guidelines. State teams generally understand that many partnerships need to take an incremental approach to implementing the key features included in the state guidelines. In some states, local school control makes it difficult for state agencies to prescribe a specific model for local STW implementation. In Kentucky, for

example, state requirements for local partnership funding included a set minimum number of work-based learning hours for students at various educational levels. These requirements were ultimately treated more as goals than as preconditions for funding, however, so not all partnerships have responded to them. Still, partnerships understood that work-based learning is important in the state's vision of a STW system.

To reinforce state priorities, states have used special funding for certain purposes. States make discretionary grants available, out of STWOA funds and other sources, to focus STW implementation in particular directions. In Michigan, for example, state-funded tax credits for youth apprenticeships and dissemination of policies to promote that model help advance this component of the Michigan STW system. Wisconsin offers wage subsidies to employers who provide students with youth apprenticeship work-based learning. In Ohio, broadening the scope of vocational programs is one of the state's priorities; the Department of Education has provided funding for districts to develop programs of study that span several related career areas. Maryland created a state-level "employer incentive" fund to attract employer interest and involvement.

State STW teams focus on providing assistance and support for local implementation. Instead of prescribing program details, most states emphasize helping local partnerships understand STW concepts and develop and carry out their plans for STW systems. State efforts to support STW implementation focus on the following areas:

- ***Technical Assistance.*** Most states provide formal and informal technical assistance through on-site visits, telephone conversations, and E-mail exchanges. State STW team staff provide advice on such topics as how to structure local training and which consultants are appropriate, how to get resource materials, and where to apply for additional sources of funding for STW development.

- ***Professional Development.*** Almost every state runs statewide conferences or workshops for STW partnerships. These conferences provide a forum for professional development and opportunities for local coordinators, faculty, counselors,

administrators, and employers to exchange ideas and information on practices or curricula they have found useful. Emphasis on this role varies across states; some give primary responsibility for organizing workshops to individual local partnerships. The Florida STW team, however, also devotes 40 percent of its share of state STWOA grant funds to pre-service and in-service training professional development for teachers.

- ***Curriculum Tools and "How-To" Guides.*** State agencies have developed materials and resources for use at the local level. These tools vary in complexity from handbooks on work-based learning or tips for recruiting employers (common in most states) to a computer-based system implemented in Florida that helps teachers develop applied academic curriculum units.

States have made special efforts to increase the participation of employers and postsecondary institutions. Some state agencies have taken steps, in ways they hope will benefit STW system building, to overcome the challenges of involving the private sector, and some are searching for ways to get colleges more involved in education reforms. In the eight in-depth study states, these two groups are viewed as critical to the success of STW development, but their participation is not yet at the levels states ultimately intend. Most of the states conduct promotional activities or have established initiatives to garner greater support and involvement among these key partners. In some cases, these activities are designed specifically for STW purposes; in others, state agency efforts have broader objectives, but are consistent with STW implementation goals.

- ***Employers.*** States have used different strategies to encourage private-sector involvement with students and schools, including (1) special promotion or recognition activities for participating firms; (2) promoting STW to employer groups (such as those convened by industry to collaborate on industry-specific workforce development issues); and (3) financial incentives for employer participation, including tax credits or special grant programs. In most of the eight in-depth study states, these efforts have not yet significantly increased the extent of employer participation. Employer use of incentive programs, for example, remains modest.

- ***Postsecondary Institutions.*** States are increasingly recognizing the importance of long-term changes in postsecondary institutions, some of which relate directly to STW objectives. STW proponents have often viewed the admissions procedures of four-year institutions as barriers at the high school level to continuation of such STW reforms as applied academics, work-based learning, and authentic assessment of student

performance through active demonstration of skills. Changing postsecondary teacher preparation programs, which continue to emphasize more traditional instructional approaches, is of primary concern to local partnerships because they expend considerable resources to retrain teachers in applied approaches. Some states have formed working groups of key agency and postsecondary institution staff to work on these issues, but this dialogue is just beginning.

4. State Education Policies Have Mixed Consequences for STW

If STW systems are to provide an infrastructure for the education of students, there should be cohesive links between STW efforts and school reform. If the career development opportunities, changes in approaches to teaching and learning, and workplace activities that the STWOA calls for are to become truly available to all students, STW development must fit in with state education requirements and frameworks and the local response to them. The main objective of these requirements generally is improvement in academic curriculum and student performance.

With state education reforms well under way in most parts of the country, state STW leaders face the challenge of linking STW to these mainstream concerns of school administrators and teachers. In many states, legislation and mandates for school change preceded the passage of the STWOA and did not anticipate or include core STW components. Oregon and Kentucky may be exceptions; in those states, school reform included from the start some of the central features promoted by the STWOA. In most states, including Oregon and Kentucky, implementation of education reforms is still unfolding. This presents an opportunity to integrate STW components into school practice but requires special effort to ensure that STW and education reform priorities do not diverge or appear to conflict.

So far, state education policies have had mixed consequences for STW development. Many state STW teams promote particular STW activities as a way to help students meet the new academic standards and graduation requirements that are a centerpiece of state education reforms. Despite this

connection in goals, however, the two efforts are proceeding independently. Some state education policies or mandates appear likely to affect STW implementation progress:

- ***State career development programs or requirements support a key STW component.*** Career development is an important element of STW systems. Many states, as part of their education reforms, have mandated career development activity for students or strongly encouraged it through state policy. For example, among the in-depth study states, Florida, Kentucky, Maryland, Ohio, Oregon, and Wisconsin have prepared comprehensive career development models that outline activities appropriate for students at the elementary, middle, and high school levels.

- ***Curriculum frameworks and accountability systems are sometimes seen as inconsistent with STW priorities.*** A few states have tried to incorporate STW approaches within curriculum frameworks and testing practices. Kentucky's original state student assessment, for example, included a review of portfolios that could contain materials from career development projects or other demonstrations of competencies. Florida has plans to incorporate real "world-of-work" scenarios into the problem-solving exercises that are a component of its state proficiency test. Across the states, however, teachers face the pressures of higher academic standards and high-stakes proficiency tests to assess student achievement. Teachers have often been understandably reluctant to let students out of class for internships, use class time for career development units, or adopt project-based teaching strategies that sometimes reduce time available for conventional instruction geared more directly to academic standards.

- ***State education reporting requirements are likely to include STW components in only a few states.*** The elements included in a state's data reporting requirements reflect the state's priorities, and districts respond to them. Recognizing this fact, the national School-to-Work office has sponsored conferences for state STW leaders to discuss strategies for changing state education management information systems. Although many states have indicated they will include STW indicators in their student reporting formats, it remains uncertain whether they will do so. So far, only two of the eight in-depth study states (Florida and Oregon) have taken concrete steps to make work-based learning activity or selection of a career major a routine part of districts' reporting requirements.

B. WHAT ARE THE FEATURES OF THE LOCAL STW INFRASTRUCTURE?

The most visible product of states' STW implementation efforts is the widespread creation of local STW partnerships. The STWOA called for establishing local partnerships throughout each state, so that all communities could implement the educational changes the legislation proposed.

State STW teams responded, making the formation and funding of local partnerships an early priority. How partnerships are defined and created is left to state and local discretion, but these local collaborations were clearly intended to be more than just conduits for federal funds to schools and other members. According to the STWOA, they were to be "responsible for STW programs" and for stimulating STW reforms.

Local STW partnerships in the 34 grantee states that have participated in the partnership survey can be described with respect to seven issues that have bearing on their potential durability and future roles:

- Breadth of partnership structures
- Strategies for defining partnerships and how they affect some partnership characteristics
- Composition and leadership of partnerships
- Extent of employer involvement
- Role played by postsecondary institutions
- Partnership functions
- Magnitude of funding made available to local partnerships

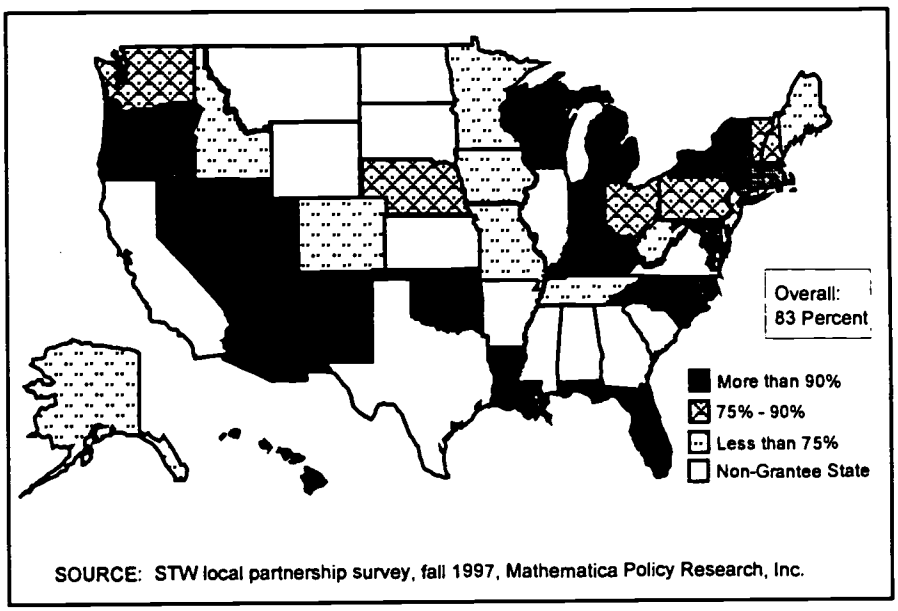
1. The System of Local Partnerships Is Widespread and Still Growing

Although federal STW legislation acknowledged that communities would develop STW systems in their own way, it clearly expected states to include substantial portions of their towns and cities in the substate partnerships they fund with STWOA grants. Under the STWOA, state plans were required to describe a strategy for expanding partnerships over time to cover all geographic areas: urban, rural, and suburban. This requirement underscored the federal commitment to ensure that

STW development would include a broad range of communities, families, and students. State STW teams have responded by creating a widespread infrastructure that is still growing.

Local partnerships are widespread in most states. By fall 1997, the 34 grantee states surveyed so far in the evaluation had formed 1,106 local partnerships that, overall, included more than 83 percent of secondary school districts in those states.[3] These STW partnership districts accounted for more than 90 percent of all students of high school age in the grantee states.[4] Thus, most students in grantee states already have at least the potential to be involved in STW activities under the auspices of STW partnerships and their member schools. Partnership coverage varies across states, however, in part because states in fall 1997 were still in different stages of creating partnerships (Figure II.1).

FIGURE II.1
PERCENTAGE OF DISTRICTS INCLUDED IN 1997 SCHOOL-TO-WORK PARTNERSHIPS, BY STATE



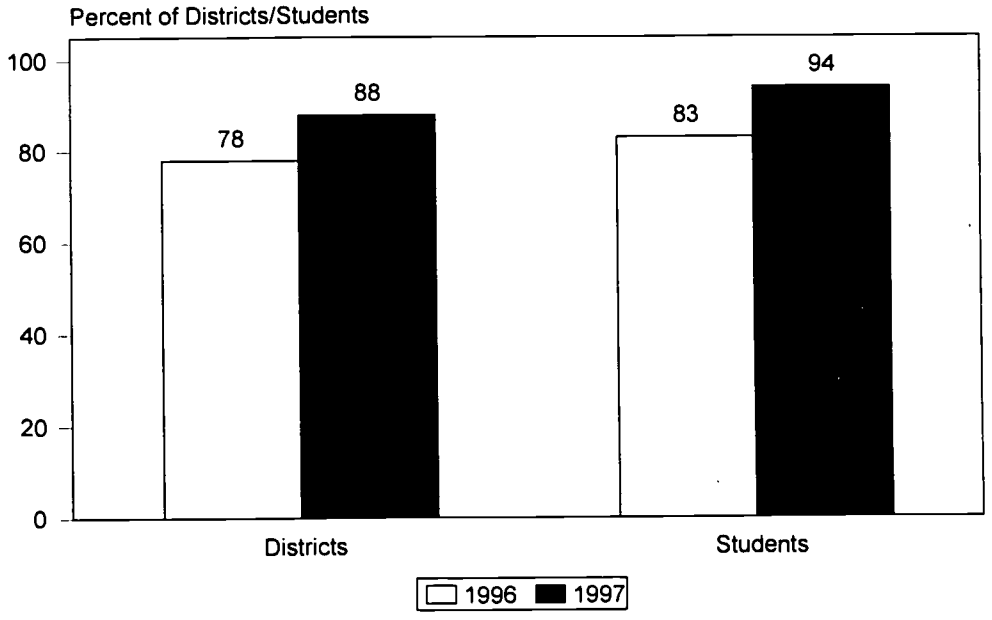
SOURCE: STW local partnership survey, fall 1997, Mathematica Policy Research, Inc.

[3]Another 45 partnerships had been established in states that had not yet received STWOA implementation grants.

[4]These estimates of overall partnership coverage include an estimate of the coverage of partnerships that did not respond to the surveys, based on the number of districts and students in the partnerships that did respond (87 percent in 1997).

Partnership coverage is still expanding. States do not create partnerships all at once. For example, in the 27 states that had implementation grants by 1996, partnership coverage continued to grow between 1996 and 1997 (Figure II.2). This expansion reflects an increase in the number of partnerships awarded substate grants and the addition of new districts to existing partnerships. Similar growth is likely for the 10 states that first received STWOA funds in 1997. In the 7 newly funded states among these 10 that participated in the 1997 partnership survey, partnerships overall included only 54 percent of their states' school districts that year; however, several of the states have funded new partnerships since then. Missouri, for example, has reported creation of an additional 37 partnerships since 1997. Partnerships are also forming in the six states awarded STWOA implementation grants since fall 1997.

FIGURE II.2
PERCENTAGE OF SCHOOL DISTRICTS AND STUDENTS INCLUDED IN STW PARTNERSHIPS THAT RESPONDED IN BOTH 1996 AND 1997



SOURCE: STW local partnership survey, fall 1996 and fall 1997, Mathematica Policy Research, Inc.

This measure of local partnerships' district coverage, however, provides little indication of the depth of STW implementation. School districts are involved in STW efforts to different degrees, and the number of students participating in STW activities varies from school to school. The extent to which partnerships are making STW activities available and students are participating in them is discussed in Chapter III.

2. How Partnerships Were Formed Is Likely to Affect Prospects for Ongoing Collaboration

The STWOA gave considerable discretion to states in establishing local partnerships. The legislation defined partnerships as entities "responsible for local School-to-Work Opportunities programs" and identified the key groups that should be included. However, the manner in which partnerships were formed, and the extent of cooperation and coordination among the members, were left largely to states and local communities to determine. Some states were prescriptive, identifying the geographic areas and communities that would be joined together in STW partnerships. For example, Maryland specified that JTPA service delivery areas would define the boundaries of STW partnerships throughout the state. In others, such as Wisconsin, partnerships were encouraged to form themselves in whatever way would best reflect local needs and the local labor market and ensure the organizational and financial capacity to develop STW components. As a result, partnerships vary in three dimensions that appear to influence the degree of collaboration among members:

- ***Partnership Size.*** The size of local partnerships reflects state decisions about the best scale of local STW collaboration. On average, local partnerships include just a few secondary schools in some states (Hawaii, Iowa, and New Hampshire), but more than 20 in states like Indiana, Louisiana, and Michigan (Table II.2). The larger the partnership, the harder it is to develop partnershipwide working relationships among members and the less likely individual communities are to view themselves as involved in a common enterprise. On the other hand, large partnerships can take advantage of

TABLE II.2

SCALE OF 1997 LOCAL STW PARTNERSHIPS, BY STATE

State	Number of Partnerships in State	Average Number Per Partnership	
		Secondary Schools	Secondary Students
Alaska	28	4.2	1,152
Arizona	16	15.9	11,507
Colorado	63	4.0	3,420
Connecticut	8	21.4	21,582
Florida	28	14.8	19,510
Hawaii	25	1.3	1,498
Idaho	14	6.7	2,823
Indiana	15	27.9	19,333
Iowa	130	2.6	1,009
Kentucky	22	15.4	8,511
Louisiana	9	38.1	22,871
Maine	21	5.8	1,533
Maryland	12	15.3	17,062
Massachusetts	40	8.2	5,973
Michigan	28	23.7	16,386
Missouri	20	6.8	3,221
Nebraska	20	13.4	4,362
Nevada	4	11.7	7,987
New Hampshire	44	2.6	1,373
New Jersey	19	8.8	8,525
New Mexico	21	7.4	3,936
New York	55	19.6	14,503

TABLE II.2 *(continued)*

State	Number of Partnerships in State	Average Number Per Partnership: Secondary Schools	Average Number Per Partnership: Secondary Students
North Carolina	71	4.3	3,830
Ohio	83	9.6	7,171
Oklahoma	45	12.4	3,869
Oregon	15	16.9	8,517
Pennsylvania	47	12.3	9,014
Rhode Island	6	8.6	7,139
Tennessee	46	5.4	3,098
Utah	10	11.1	10,841
Vermont	14	5.8	1,639
Washington	52	6.6	6,169
West Virginia	43	3.4	1,865
Wisconsin	32	14.4	8,504
All 34 Grantee States	**1,106**	**9.0**	**6,263**

SOURCE: STW local partnership survey, fall 1996, Mathematica Policy Research, Inc., and NCES Common Core Database.

regional collaboration and economies of scale and have more employers, industries, and postsecondary institutions to draw on.

- ***Geographic Focus.*** Defining partnerships with clear geographic boundaries, and including all key institutions and organizations in that area, can promote sustained cooperation on a comprehensive STW strategy. Most partnerships have formed in that way. Some states, however, awarded grants for specific projects (for example, developing certain career majors) and allowed schools or districts to be included in multiple grants and align themselves with different partners for subsequent rounds of STW funding. These funding practices can fragment members' efforts. More seriously, such practices can make it difficult to obtain ongoing commitment from district leaders to the concept of a comprehensive STW system, since this type of grant often involves only a few staff from particular departments and does not require active engagement by district administrators in a broad, collaboratively defined agenda. These nongeographically defined partnerships will probably be poorly positioned to lead broad STW implementation efforts or even to endure after federal funding ends.

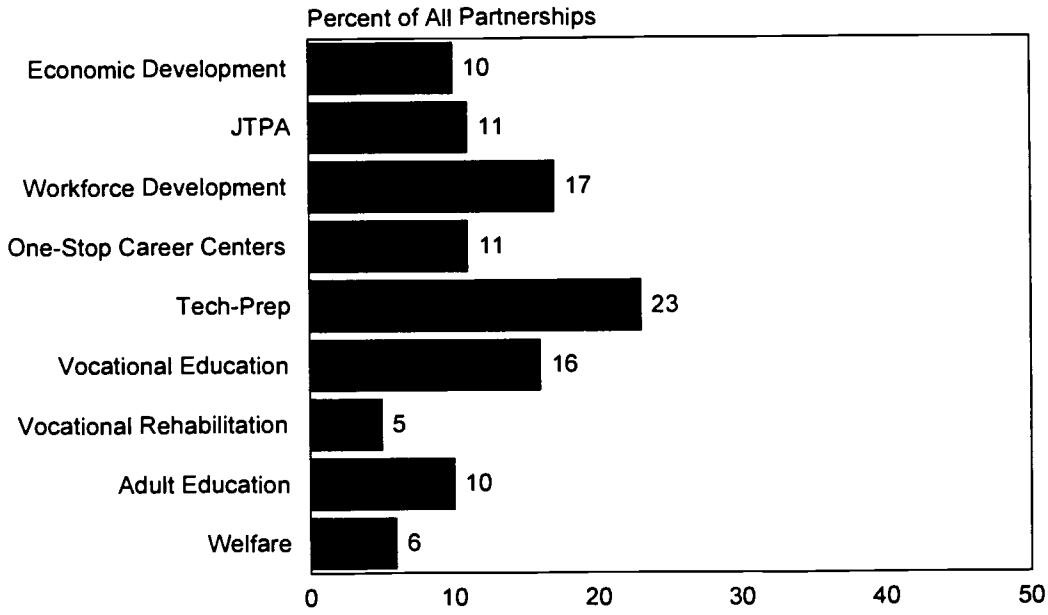
- ***Alignment of STW and Other Collaborative Initiatives.*** To the extent that the membership of STW partnerships and their governance structures can be aligned or integrated with other related initiatives, lines of communication can be simplified, funding sources can be pooled and coordinated, and redundant discussion of common issues can be minimized. The national local partnership survey indicates that organizational integration has been achieved to some degree in 42 percent of partnerships, where STW governing boards also are responsible for other program domains. Most often, STW governance is linked to Tech-Prep or workforce development (Figure II.3).

3. Partnerships Are Broad Collaborations, Usually Led by Educators

The STWOA envisioned local partnerships as a collaboration among a broad array of institutions and organizations. At a minimum, partnerships were to include employers, school districts and postsecondary institutions, organized labor, and students.[5] The possibility of participation by a wide range of other community, industry, government, education and training, and

[5]It is unclear whether the congressional expectation was that students would be "members" simply in their role as consumers of STW activities or that representatives of student organizations or student leaders would sit on partnership decision-making bodies. The latter interpretation is not often stressed by partnerships visited for this evaluation.

FIGURE II.3
OTHER PROGRAMS SHARING GOVERNANCE BOARD WITH SCHOOL-TO-WORK PARTNERSHIPS



SOURCE: STW local partnership survey, fall 1997, Mathematica Policy Research, Inc.

service organizations and agencies was also acknowledged. The strength, effectiveness, and priorities of the partnership, however, are likely to depend on which members it brings together, and who exercises leadership within the partnership.

Educators and employers are well represented, but others are less so. The required core types of STW partners--local education agencies, high schools, postsecondary institutions, and representatives of the business community--are members of nearly every partnership (Table II.3). However, organized labor and students are less often reported as partnership members.[6] Beyond

[6]Evaluation case studies identified four reasons for the lower involvement of organized labor: (1) union objections in some states to STW concepts such as "youth apprenticeship"; (2) concerns about possible displacement of mature workers by low-paid students in workplace activities; (3) perceptions among some labor leaders that their active involvement was not really welcome; and (4) the absence, in some locations, of strong and active local unions (see Hershey et al. 1997).

TABLE II.3

PARTNERSHIP COMPOSITION IN FALL 1997

Type of Institution/Entity[a]	Percent of Partnerships with Each Entity	Number of Each Entity: Total	Number of Each Entity: Average per Partnership[b]
Education Institutions			
Local Education Agencies/Districts	99.7	6,453	6.5
High schools	99.6	8,184	8.2
Middle schools	86.9	7,101	7.1
Elementary schools	86.9	20,765	20.8
Vocational high schools	23.8	458	0.5
Area/Regional Vocational Districts/Centers	35.2	537	0.5
Intermediate or Regional Educational Service Districts	25.6	339	0.3
Two-Year Postsecondary Institutions	88.4	1,412	1.4
Four-Year Postsecondary Institutions	60.1	1,106	1.1
Alternative Education Providers	72.6	2,524	2.5
Other Educational Institutions	11.4	539	0.5
Training Institutions			
Proprietary Training Institutions	15.4	434	0.4
Registered Apprenticeship Agencies	27.0	529	0.5
JTPA/PIC Agencies	68.4	781	0.8
Other Training Institutions	6.9	211	0.2
Business and Labor			
Private-Sector Firms	83.8	26,807	26.8
Business/Industry or Trade Associations	48.0	3,947	4.0
Chambers of Commerce	80.6	1,844	1.8
Labor Unions	61.2	1,233	1.2
Other Organizations			
Workforce Development Boards	52.9	674	0.7
Local/Regional/State Government Agencies	81.2	3,061	3.6
Community-Based Organizations/Other Nonprofit	62.2	2,708	2.7
Parent/Student Representation	75.7	6,903	6.9
Other	58.7	2,339	2.3

SOURCE: STW local partnership survey, fall 1997, Mathematica Policy Research, Inc.

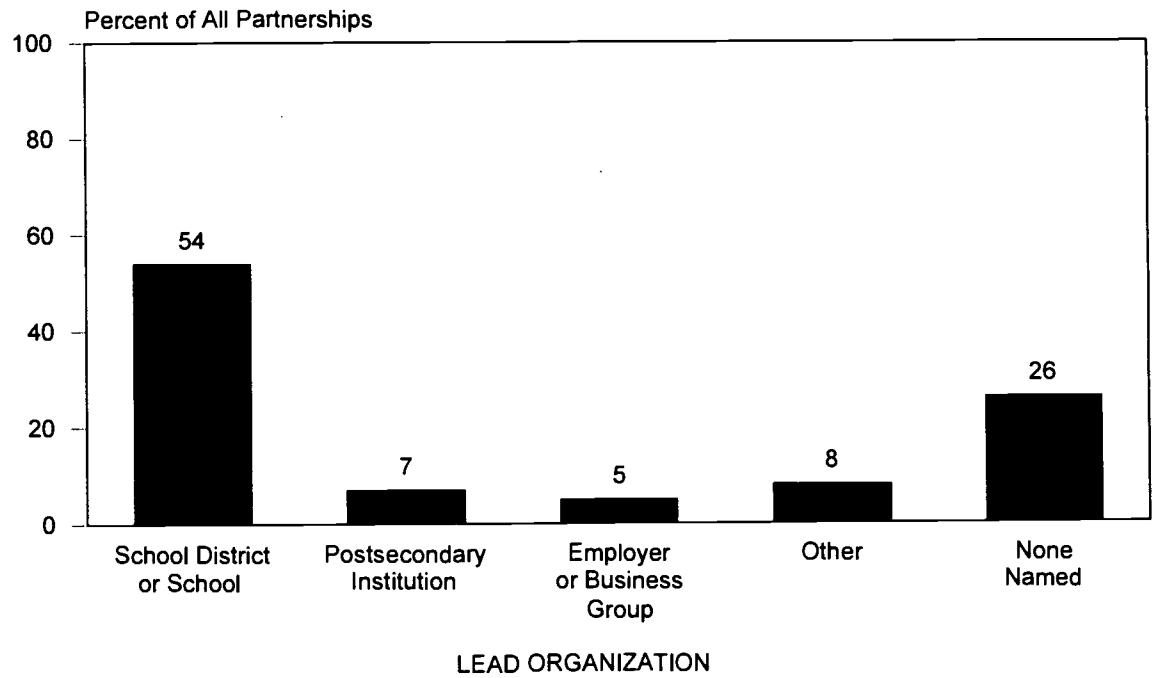
[a]May include some double-counting across partnerships.

[b]Average computed across all partnerships responding to the survey.

these parties, explicitly identified in the STWOA, membership of other groups in local partnerships is quite substantial. These groups include community-based or nonprofit organizations and alternative education providers that offer at-risk students and dropouts GED or high school diploma preparation outside traditional schools.

School districts most often play the lead coordinating role. Despite the visible and growing involvement of employers and the varied contributions they make, educators usually lead in making the partnership function. Although about a quarter of all partnership coordinators prefer not to single out a particular member as a leader, those who do generally identify a local or intermediate school district or particular secondary school as most influential in developing and coordinating partnershipwide activities (Figure II.4). School leadership is common even in partnerships where achieving substantial involvement of employers has been a priority.

FIGURE II.4
LEAD ORGANIZATION IN 1997 PARTNERSHIPS



SOURCE: STW local partnership survey, fall 1997, Mathematica Policy Research, Inc.

Which partner leads partnership activity has both substantive and public relations importance. A strong role for educators in defining priorities and moving initiatives along appears, from the evaluation site visits, to be an important ingredient in keeping students' school program broadly defined and in ensuring an educational agenda for their workplace experiences. The source of leadership can also affect community perceptions of STW initiatives. In some states, parents in small but vocal interest groups have persistently expressed concern that employers' involvement will transform schools into job training units for big business. Site visits and partnership survey data suggest that such concerns are unfounded at this stage, because even partnerships led by employer groups still rely heavily on schools and school districts to set the agenda for STW implementation and initiate the activities to carry it out.

4. Employer Involvement Is Widespread and Expanding

Employers are expected to take active roles in STW system building and to work closely with schools. Most partnerships envisioned roles for employers that go beyond creating student workplace learning experiences. These roles include offering input into curriculum, visiting schools, and providing resources and other forms of support to schools to help connect the classroom and the workplace.

Increasing collaboration between employers and schools has been a particularly successful aspect of STW implementation. Although the idea of school-business partnerships did not originate with the STWOA, the legislation has added impetus to efforts to develop more substantive links between educators and employers. Partnerships have emphasized finding ways to involve the business community; many have hired business coordinators to help organize recruitment of employers, connect individual employers with schools, or conduct meetings or training sessions in which employers and educators work together on STW issues. In fact, promoting employer

involvement has been the primary focus of partnership efforts; in the 1997 survey, 67 percent of partnerships gave the highest priority rating to the objective of recruiting employers and 58 percent to the objective of linking school- and work-based learning for students.

By 1997, employers were working with a substantial and growing fraction of American high schools (Table II.4). For example, more than 48 percent of partnership high schools in school year 1996-1997 benefited from the collaboration of employers who provided some form of training or internships for school staff, up from 41 percent the previous year. In more than one-third of partnership schools, employers worked with teachers on curriculum development, a modest but important expansion over school year 1995-1996. There were similar increases for all forms of employer involvement with schools.[7] This expansion is consistent with federal performance goals for STW development and with other reports suggesting that employer engagement in STW partnerships and with schools is widespread (Institute for Research on Higher Education 1997).[8]

5. Postsecondary Role in Partnerships Is Limited

The STWOA promotes "linkages between secondary and postsecondary educational institutions" as part of a comprehensive STW strategy. These linkages were expected to go beyond the traditional kinds of interaction between high schools and colleges relating to recruitment and enrollment of high school graduates. Some more extensive institutional connections already existed before passage of the STWOA, and many STW partnerships intended to build on these arrangements. For example,

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[7]Year-to-year increases in older partnerships--those that had responded to the 1996 partnership survey--were even greater than those presented in Table II.4. Table II.4 includes newer partnerships as well, which had somewhat lower rates of employer involvement. For example, the percentage of schools receiving employer assistance with teacher internships climbed from 41 to 50 percent in partnerships that responded to both the 1996 and 1997 surveys.

[8]The national School-to-Work office progress measures also found increases in employer involvement over this period, although they focus more on work-based learning for students and internships for teachers (Medrich et al. 1998).

TABLE II.4

BUSINESS AND INDUSTRY SUPPORT PROVIDED TO SCHOOLS

	Percent of Schools Receiving Support		Employers Providing Support: School Year 1996-1997	
	School Year 1995-1996	School Year 1996-1997	Total Number	Average per School[a]
Working with School Staff				
Curriculum Development	30.7	34.1	20,391	4.5
Promotion/Marketing STW	38.6	45.6	30,791	6.7
Training/Internships for School Staff	40.9	48.2	23,540	5.1
Guest Speaking at Schools	53.2	56.7	59,412	13.0
Providing Material Resources				
Provide Equipment	29.0	32.2	9,744	2.1
Lend Office Space	20.8	22.8	11,433	2.5
Provide Student Awards	30.0	33.6	12,495	2.7
Provide Teacher Stipends	11.3	13.3	2,395	0.5

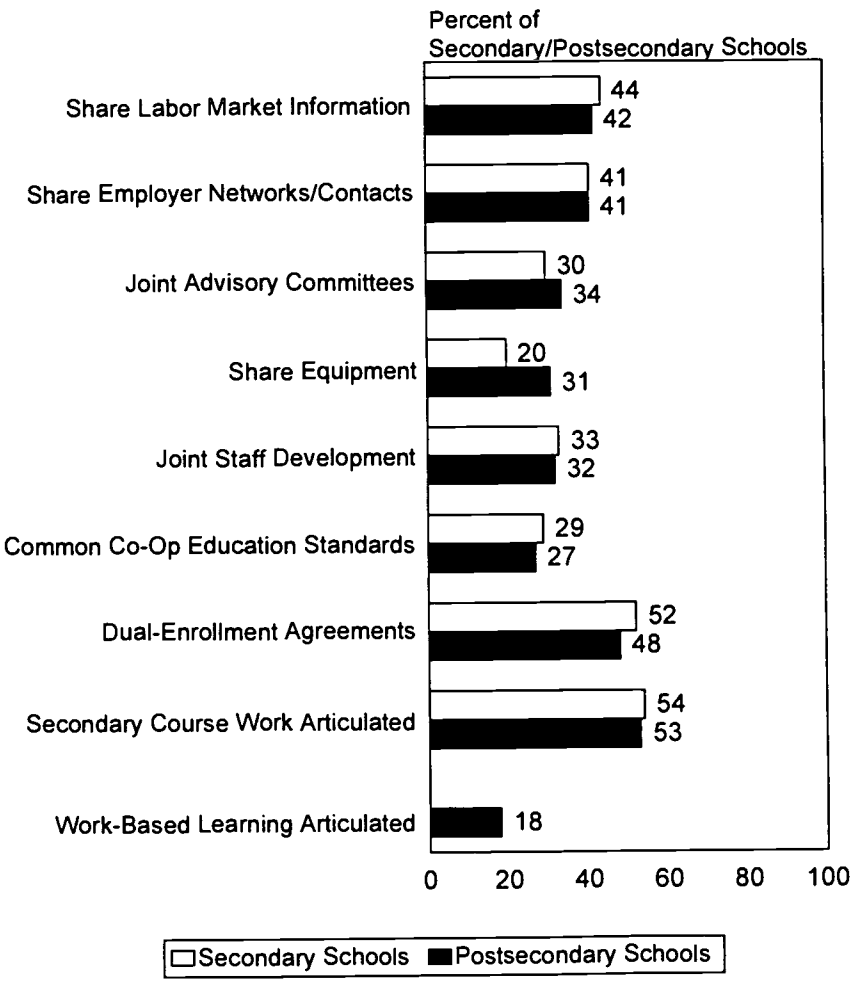
SOURCE: STW local partnership survey, fall 1996 and fall 1997, Mathematica Policy Research, Inc.

[a]Average is computed for those schools that reported receiving support and the number of employers providing the support.

the Tech-Prep Education Act of 1990 encouraged high schools and community colleges to work together to create and expand articulation agreements. These agreements link secondary and postsecondary occupational courses or programs, sometimes granting students college credit or advanced standing for high school courses that are equivalent to portions of the college curriculum.

Partnerships generally include postsecondary institutions, and some interaction takes place between them and their school district partners. On average, 2.5 colleges (including two-year and four-year institutions) are included in local partnerships--a total of almost 1,500 institutions in 1997. They collaborate with schools in a variety of ways (Figure II.5), most commonly by negotiating

FIGURE II.5
SECONDARY-POSTSECONDARY LINKAGES IN 1997



SOURCE: STW local partnership survey, fall 1997, Mathematica Policy Research, Inc.

articulation of high school and college career programs and dual-enrollment agreements that allow advanced high school students to take college courses if they have exhausted their school's offerings in a particular subject. They also share labor market information and networks of employer contacts and appoint their faculty and administrators to participate together on advisory committees overseeing programs of common interest.

Colleges play a central role in some partnerships. They are the fiscal agents for about 12 percent of local partnerships, and coordinators describe them as the "lead organization" in about 7 percent of partnerships. Particularly where STW partnerships correspond closely in composition to preexisting Tech-Prep consortia formed around a community college, postsecondary partners are willing to participate actively in the work of the partnership.

In general, however, the work of STW partnerships has brought little change to relationships between schools and colleges. None of the linkages and interactions shown in Figure II.5 have grown more common in the two years of partnership surveys. Case study site visits suggest that postsecondary institutions are valued members of STW governing boards but that, in most cases, the nature and intensity of their interactions with schools are not changing significantly as part of STW implementation. Even in the relatively rare cases where community colleges are fiscal agents or lead organizations, they typically play a convening and administrative or coordinating role. It is less common for them, as part of STW implementation, to have increased the interaction between their faculty and that of secondary schools focusing on curriculum or program development or on associated changes at the college level. Cases do exist in which community colleges are closely involved with high schools in defining critical skills and reshaping secondary curricula; these appear to be unusual, however, and are usually the result of initiatives predating the STW partnership.[9]

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[9]Earlier studies have found that joint efforts by schools and community colleges on Tech-Prep (continued...)

Involvement of four-year postsecondary institutions in partnerships is more limited than that of community colleges. Whereas community colleges are fiscal agents in 11 percent of partnerships and lead organizations in 6 percent, four-year institutions are fiscal agents and lead organizations in about 1 percent or less. Although four-year colleges and universities are identified as members of partnerships almost as often as community colleges, local school district leaders see them as playing more modest roles. In case study site visits, partnerships often reported that four-year institutions are skeptical that the kinds of curriculum changes STW proponents are promoting will prepare students better for their baccalaureate degree programs.

6. Partnerships Play Primarily Capacity-Building Roles

STW partnership entities--the groupings of school districts and colleges, employers, labor and other organizations, and the staff that support their common efforts--were intended to serve a broad purpose, but one left largely to partnerships themselves to determine. The STWOA deemed some level of cooperation and coordination spanning different institutions necessary to plan and implement STW systems. However, the legislation did not stipulate whether this partnership collaboration was to focus solely on matters of policymaking and grant accounting or should also extend into other system-building activities. The STWOA emphasized the importance of coordinating the efforts of partnership members by identifying "connecting activities" as one of three main elements of STW initiatives. However, whether these activities were to be undertaken by the partnership entity or through bilateral relations between individual members was left to the discretion of participating communities.

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[9](...continued)
articulation agreements have led to little change in college programs and that relatively few students in articulated high school vocational courses have taken advantage of them to enroll in the postsecondary stage of the Tech-Prep program (see Hershey et al. 1998).

Partnerships' roles have generally evolved as efforts to develop the capacity to implement STW reforms among their members. Because of the importance of stimulating activity that will persist beyond federal STWOA funding, many local partnerships have served as agents for change and coordination, rather than attempting to create their own programs providing services or activities directly to students. There are exceptions, however, particularly in small partnerships with a single school district or just a few schools. In these cases, coordinating responsibility is sometimes folded into the existing job of district staff or the school board, with grant funds used to support specific student programs and activities.

In most cases, however, where partnerships span multiple school districts or communities, the entities or staff that represent the partnerships have taken on four roles that could affect the momentum and sustainability of STW development:

- ***Convening Members and Increasing Awareness of STW.*** Maintaining cohesion and promoting STW concepts to key constituent groups are important for most STW partnerships. A major function of partnership entities is to bring members together and facilitate communication among them. STW governing boards partially serve this purpose, and some partnerships also arrange other opportunities for members to share information and develop common policies.[10] These meetings help plan ways to increase awareness of STW among employers and the public.

- ***Promoting Professional Development.*** Arranging professional development opportunities--for educators and sometimes employer staff--is a major focus of partnership efforts and resources. Partnership leaders usually organize and fund teacher training on topics related to STW reforms, in part because the professional development budgets of individual districts are often limited and needed for other concerns. Partnership staff are often more aware of consultants and trainers who can deliver useful services. Many partnerships have relied on the strategy of providing essentially "free" training to entice districts, schools, teachers, or other members into greater interest and involvement in STW efforts.

[10]Ninety percent of partnerships report that they have a governing board. Those that do not tend to be small--only a single district or a few schools. In these communities, partnership functions are often vested in the existing school board or in the role of a district supervisor.

- ***Recruiting and Supporting Employers.*** In many partnerships, although districts or schools recruit employer partners for themselves, the partnership entity helps by conducting general outreach to the business community (sometimes by contracting with an organization such as a chamber of commerce). Partnerships commonly develop procedures for recruiting employers or structuring work-based learning that all members can use. In some areas, partnerships coordinate school-employer collaboration for member districts: recruiting businesses, allocating employers to work with individual schools, and maintaining computer systems to help match students with workplace opportunities. Having the partnership perform these functions is intended to minimize competition among schools seeking workplace learning openings from the same employers.

- ***Allocating Subgrants to Members.*** Most partnerships pass some of their STWOA grant on as "mini-grants" to smaller units within the overall partnership structure, in part to generate support for the STW agenda. These small awards to individual districts, schools, community-based organizations, or employer groups are often used to engage recipients in some part of the partnership effort. Many partnerships, for example, help cover the cost of a STW liaison in individual schools to ensure that someone is responsible for moving the STW agenda forward. Some governing boards adopt partnershipwide agendas based on collaborative assessment of priorities and implementation gaps and use mini-grants to stimulate efforts that fit into the adopted plan. Sometimes the mini-grants are used to test model or promising practices before they are implemented on a broader scale.

7. Partnership Funding Is Suitable for Building System Capacity, Not Running Programs

The STWOA was designed primarily to jump-start the creation of a broad system of initiatives across the United States, rather than to provide ongoing funding for local programs or to help disadvantaged communities. Funds were to be used as "venture capital, to underwrite the initial costs of planning and establishing statewide School-to-Work Opportunities systems . . ." (STWOA Section 3).[11] Grants were to help promote partnership formation, develop implementation experience with STW program components, and instill a "systems approach" to initiatives under

[11]After the expiration of this federal "seed money"--a maximum of five years for each state--it was expected that STW initiatives would be sustained by aligning with and drawing on the resources of other education and workforce development efforts.

way. Although a portion of STWOA funding was designated for selected poor communities, the basic goal of the legislation was broad system development.[12]

In general, STWOA funding levels are suited to the collaborative, capacity-building roles partnerships play rather than to ongoing program support. If all substate partnership grants through school year 1997-1998 in the 34 states covered by the 1997 survey had been disbursed entirely to member school districts, the districts would have received an average of $25,092 per year, or about $4.32 per elementary and secondary student per year (Table II.5).[13] Some early reports from states suggested that state and local sources were contributing $2 for every $1 in federal funding for STW implementation (U.S. Departments of Education and Labor 1996). Even if that pattern holds true, the amount of funding available for STW planning and implementation is still small relative to overall elementary and secondary expenditures per pupil per year--about $6,500 (Digest of Education Statistics 1997).

The aggregate pattern of states' partnership funding actions makes it clear that STW partnership development is viewed as a general reform rather than as an effort targeted at poor or other types of communities (Table II.5). For example, urban schools do not receive a particular concentration of state funds; although overall substate grants are largest in urban partnerships, the average per-student grant is lowest in urban areas. Partnerships in areas with high poverty rates have received substate funding averaging somewhat less per student than have partnerships with smaller poor populations.

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[12]The STWOA authorized direct federal grants to urban and rural high-poverty areas and Native American STW partnerships. Together, these categories accounted for about $117,500,000 in total STWOA funding between 1994 and 1996, or about 19 percent of total STW grants.

[13]Per-district and per-student funding levels are higher in school year 1997-1998 than in the previous year (as reported in Silverberg et al. 1998) because most states have given partnerships increasingly larger grants over the first several years of funding.

TABLE II.5

CUMULATIVE FUNDING OF SUBSTATE STW PARTNERSHIPS
THROUGH SCHOOL YEAR 1997-1998

Partnership Characteristics	Number of Partnerships	Average Annualized Grant (in Dollars)[a]	
		Per Student[b]	Per District
All	867	4.32	25,092
Metropolitan Status			
Urban	108	2.07	88,576
Suburban	317	5.46	24,870
Rural	442	7.58	16,785
Percent of Population Below Poverty Level			
0 to 5	61	5.80	24,439
6 to 10	224	6.13	24,543
11 to 15	295	4.41	20,869
16 or more	277	3.04	31,820
Size (Number of High Schools)			
1	150	2.36	51,800
2 to 5	261	3.35	39,526
6 to 15	290	5.13	26,657
15 or more	166	4.85	19,412

SOURCE: STW local partnership survey, fall 1996 and fall 1997, Mathematica Policy Research, Inc., and NCES Common Core Database.

[a] Annualized grant amounts were calculated by summing all STWOA funds received by each partnership up to summer 1998, dividing by the total number of months for which grants were awarded, and multiplying by 12.

[b] Annualized grant amount divided by the total number of elementary and secondary students enrolled in partnership districts.

Overall patterns of funding distribution are different, however, if account is taken of the grants awarded directly by the federal government to partnerships in poorer communities. Urban/Rural Opportunities Grants (UROGs) and Native American grants were awarded to ensure that Indian youth and youth in high-poverty areas have access to STW initiatives. These grants are typically more generous (in relation to student population), but also concentrated in a much smaller number of communities, than substate funding. Earlier analyses of total STW funding from 1994 through 1996, including federal direct grants, UROGs, and Native American grants, as well as substate grants, showed an overall pattern that slightly favored poorer communities (Silverberg, Haimson, and Hershey 1998).[14]

C. HOW DURABLE IS THE STW INFRASTRUCTURE?

The STWOA gave states and local partnerships a central role in developing STW systems. It also gave them some initial funding, but it did not provide long-term financial support. In fact, the legislation did not define the role state teams or local partnerships would play, if any, beyond the five-year period of STWOA seed money funding. One interpretation of congressional intent is that these STW entities need exist only long enough to help schools develop the relevant policies and practices and for communities to form the collaborative bonds among schools, employers, and other key members that the STWOA calls for. After federal funding ends, the groups would be encouraged to work together but without the formal structure of the partnership or the leadership of a state STW team. Alternatively, these entities might become vital to ongoing STW system development, but financial support for them would have to be provided by public and private institutions that believe them to be valuable.

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[14]More recent data on the amounts granted to UROGs and Native American partnerships, and the periods for which grants were made, are not yet available for analysis.

State and local STW entities have already begun to face diminishing STWOA grant amounts. In school year 1998-1999, 27 states are in their fourth or fifth year of federal STW funding, with grant amounts significantly reduced from earlier years. It is therefore important to examine whether state and local collaborations are likely to continue into the future without the federal funds that have been supporting them. The survival of these entities is likely to depend on two factors:

- State efforts to sustain state teams and local entities through staff commitment, special STW legislation, and funding streams
- Availability of other resources local partnerships can draw on

This analysis draws primarily on information collected about state and local STW sustainability efforts through site visits in the eight in-depth study states. The information illustrates initiatives that other states and communities could undertake, as well as the kinds of challenges they are likely to face.

1. State Plans for Sustaining Original STW Structure Still Emerging, but So Far Limited

With technical assistance from the national School-to-Work office, many states are developing ideas about whether and how to keep state STW offices and teams and local partnerships functioning beyond the federal funding period. At this time, however, actions and concrete commitments for state funding or permanent establishment of local partnership structures are relatively uncommon, at least among the eight in-depth study states, five of which were among the earliest funded by the STWOA. Some states have not decided on the configuration of state STW leadership after federal grants end. Most states have at least one more year of STWOA funding and, therefore, time to develop a plan; several states are allowing partnerships to carry over unspent funds to enable the partnership structures to continue for an additional year. Activities in the eight in-depth study states

so far suggest three consequences for the future of state and local entities beyond the end of federal STW funding: (1) some form of state STW leadership will likely persist, at least for a while; (2) state STW funding to sustain partnership structures will be uncommon; and (3) subsuming partnership entities and functions under workforce development boards, as some states have proposed, will pose significant challenges.

Short-term survival of state STW administrative teams is likely, but on a reduced scale. State STW offices and staff are likely to be sustained at some level, although their long-term future and roles are unclear. The state administrative teams, even those now facing their fourth or final year of STWOA grants, have no immediate plans to disband, but some state offices are beginning to scale back their staff. Maintaining the state team may be easiest where states have avoided funding STW staff out of STWOA grants. Maryland and Florida, for example, have relied primarily on dedicated staff from major state agencies. Other state teams are letting contracts expire for members hired out of grant funds for specific activities (such as promotion and dissemination or statewide employer recruitment). Overall, in most of the eight states, it appears that a core of the original STW team will remain to continue state support activities for at least a year beyond STWOA funding. There are exceptions, however. In one state, administration of STW has already devolved to an agency unit that primarily oversees contracts and grants; little state administrative leadership is left to continue substantive STW momentum after federal funding. Even short-run stability in a few other states is uncertain, particularly where the STW team is not located in a preexisting executive agency.

Securing state funding to sustain existing STW partnerships is likely to be difficult. The STWOA helped strengthen or even create sets of relationships and responsibilities between institutions within and across communities. In multidistrict partnerships, these relationships and

responsibilities have generally been managed by staff who work on behalf of the overall partnership's interests. If these partnership linkages and activities are deemed worth continuing, resources are needed to support the staff and the work they do.

So far, states have had mixed success in committing their own funds to keep STW partnership structures or certain partnership activities going. Most of the in-depth study states have tried; a few have been moderately successful. For example, in 1997, the Massachusetts legislature approved about $3 million in funding for "Connecting Activities" and seemed poised to approve a similar or larger amount in 1998. However, these funds (available to either STW partnerships or the regional employment boards that oversee them) are intended specifically to support staff who recruit employers and monitor student work-based learning, not for the convening and professional development roles that partnerships have been playing. In Michigan, the governor's new Career Preparation System will provide funding, but it will flow directly to districts, rather than through the existing partnership structures. The state legislature in Kentucky recently authorized funding that can be applied for by STW partnerships, Tech-Prep consortia, or even individual school districts to support particular program activities; this funding thus does not explicitly aim to sustain existing partnerships. In most of the other states, there are no concrete plans yet to provide state funds to support partnership staff or the work they have been doing.

Workforce development boards may not preserve STW partnership structures and relationships. Some states--including several in the in-depth study--have proposed or formed workforce development boards responsible for STW development and other programs. Interest in establishing these boards was stimulated originally by proposed federal legislation in the mid-1990s intended to consolidate a variety of employment and training programs. The legislation proposed that the boards would be made up of representatives from business, education providers, community-

based organizations, and relevant local agencies and would coordinate federal (and, where desired, state) job training funds and programs. Although federal legislation--the Workforce Investment Act--was not passed until August 1998, some states began forming local workforce development boards as early as 1995, out of existing private industry councils responsible for JTPA. Because of these origins, the boards have stronger linkages with adult initiatives and service providers (such as community colleges) than with secondary schools and programs. The roles and emphasis of workforce development boards, and their relationship to STW systems, are still evolving, however.

From state agencies' perspectives, these boards are primarily important for coordinating STW implementation with that of other initiatives, but they are also potentially important as a strategy to help continue the partnership identity and some functions beyond the STWOA funding period. In some states, STW partnership boundaries match or come close to those of the service delivery areas of workforce development boards. However, efforts under way in the in-depth study states suggest that sustaining STW partnership teams or roles under this approach will likely be challenging, for the following reasons:

- ***Boards are often conceived primarily as conduits for funding.*** In some states, workforce development boards' primary function will be as arbiter of decisions regarding the allocation of federal and state funds for career-related education, training, and employment initiatives. Although the boards are charged with coordinating activities and funding in their regions, they have no explicit responsibility for maintaining collaborative links or common procedures or policies among area institutions--an important role that STW partnerships have played. Nor do these boards usually have much staff to play those roles.

- ***States cannot ensure strong links between the boards and current STW partnerships.*** Provisions for creating or passing funds through workforce development boards in some states require the boards to set up committees or councils to advise the board on education issues. However, there is evidence even in the eight in-depth study states that these committees sometimes fail to include the individual or institutional relationships already established as part of STW partnerships.

- ***STW must compete with other important initiatives for board attention and funding.*** In states where STW is or will be under workforce development boards with multiple responsibilities, the roles partnerships play and the broad population of students they are expected to serve may be less of a priority than other pressing concerns (such as job training for low-income adults or job placement for welfare recipients). For example, the Workforce Investment Act focuses on services for adults and low-income youth, but it makes no provision for coordination with STW partnerships.

2. Prospects for Sustaining the Partnerships Without Federal or State Funds Are Limited

Some level of funding would be needed to sustain partnership entities, if they provide sufficient "valued added" in the eyes of the partnership members and prospective funding sources. At least so far, STWOA substate or direct federal grants have been the primary source of financial support for the activities multidistrict or regional partnerships undertake: facilitating collaboration and information sharing, providing professional development, and coordinating employer involvement. Because few states now appear to have a viable strategy for maintaining the original partnership structures after the end of STWOA funding, many partnerships would probably have to find other resources to continue operating on even a limited scale.

At this point, it seems likely that many partnerships established under the STWOA will have difficulty obtaining replacement funding. There are two sources of possible support for the partnerships' coordinating and leadership roles: (1) funding for other programs that have similar components and that can support the entity responsible for STW development, and (2) contributions from local partnership members.

Partnership survival is most assured where STW builds on preexisting collaboratives. Without state or federal funding specifically for STW development, some partnerships will be able to rely on funding for other initiatives with similar objectives and implementation strategies. Local or regional jurisdictions relevant to education or workforce development, formed before the STWOA, provided a basis for defining some STW partnerships. Partnerships in some states were

constituted mostly around existing Tech-Prep consortia or community college service areas (Florida), intermediate educational service districts (Michigan), or regional workforce development consortia (Oregon). In these instances, local STW entities were expected to build on established institutional relationships and funding that would give STW a head start and sustain the collaboration beyond the period of federal STWOA grants. Because the preexisting entities have generally had staff who already play roles similar to those in STW partnerships, and they serve essentially the same communities and educational institutions, funding has been pooled and coordinated, and some partnership functions will continue.

Other partnership formation strategies, at least as observed in in-depth study states, are less likely to lead to a durable structure that lasts beyond the federal funding period. For example, institutions and communities in some states were formed into partnerships solely to oversee specific STW projects or programs; the termination of STWOA funding in these situations is more likely to lead to the dissolving of partnership entities. A third category of partnerships exists; these partnerships are geographically defined and established with a staff and responsibility for a broad set of STW-related reforms, but they are not built on existing initiatives. It is uncertain whether these partnership structures will survive after federal STWOA grants cease.

The higher probability of survival for partnerships that are organizationally aligned with other funded collaboratives is good news for many communities involved in STW implementation. The local partnership survey suggests that at least a quarter of partnerships in 1997 may overlap with Tech-Prep consortia.[15] Many of these consortia feature the same kind of collaborative structure, include the same set of members, and perform the same types of functions as do STW partnerships. No precise measures are available for the extent to which STW partnerships coincide with

[15]This measure is based on the extent to which STW partnership governing boards also are responsible for overseeing Tech-Prep in their communities.

intermediate educational service districts or other ongoing, funded entities that serve geographically defined areas in the same manner as partnerships (such as education-business alliances or other special education collaboratives). These arrangements may increase the proportion of partnerships that could persist beyond federal STWOA funding to about one-third.

Voluntary financial support from members of local partnerships is rare and uncertain. In some communities where there is no ongoing federal or state support for partnership activities, the value of these activities may be high enough for individual partners to maintain the partnerships with voluntary donations. Many partnerships in the in-depth study states are discussing options for raising funds locally--by establishing an educational foundation, soliciting donations from each participating school district, or asking employers to contribute financially. Some partnerships have even incorporated as 501(c)3 nonprofit institutions to enable them to function independently and accept donations.

At least so far, such efforts at self-sufficiency are uncommon. About 5 out of 40 partnerships in Massachusetts and a few in Oregon, for example, have planned to implement this approach. Moreover, despite professed goals to pursue this course, few partnerships have yet had to test their ability to raise local funds in any substantial amounts. Even in the eight states that were first funded under the STWOA, partnership grants have not ended. Although districts in a few areas observed seem inclined to contribute to partnership continuation, it is unclear how much of a contribution they will make and for how long.

III. CHANGING STUDENTS' EDUCATIONAL EXPERIENCES

Congress enacted the STWOA to promote a major transformation in how American students are educated. It encourages educators and other partners to support three key changes:

- ***Increase Opportunities for Career Development.*** Expand ways for students to learn about their interests and aptitudes, the rewards and demands of different careers, and the education they will need to meet their career objectives.
- ***Make School Curricula More Relevant to Career Paths and Workplace Skills.*** Modify school curricula to organize at least part of students' studies around their career interests and to strengthen their ability to solve problems and apply knowledge.
- ***Expand Work-Based Learning Linked to School.*** Provide opportunities for a wide range of students to receive career exposure, work experience, and training at employer sites and create strong connections between workplace learning and classroom studies.

Progress in these directions can be measured by the extent to which partnerships make these opportunities and practices available and students become involved in them. The main findings on implementation of the educational experiences the STWOA promotes include:

KEY FINDINGS ON HOW STW HELPS CHANGE STUDENTS' EXPERIENCES

- ***Local partnerships have emphasized career development opportunities most.*** Schools involve about two-thirds of their students in a variety of career development activities, with job shadowing the fastest-growing. However, making these activities into a sequence that helps students gradually refine their goals remains a challenge.
- ***Career focus in school curriculum is promoted mostly by guidance on course selection.*** Clearly defined "career majors," consisting of integrated academic and vocational studies as encouraged in the STWOA, remain uncommon.
- ***Partnerships promote high-quality internships and work experience, but expansion in participation is slow.*** Students get training and experience in diverse career areas in STW programs, but only about 13 percent of students are involved in an internship or job with links to school.
- ***Participation in a comprehensive set of STW activities remains low.*** Only about three percent of 1998 seniors took part in varied career development activities, some kind of career-focused classes in school, and an internship or job linked to school.

This chapter examines the three main categories of student activity included in the STWOA. The analysis explores four questions, which ultimately will determine whether a strong foundation has been created for STW systems:

- How prevalent, and how important, are career development activities?
- How are partnerships and their members changing curriculum, and to what extent do they emphasize integration of academic and vocational education?
- Are work-based learning opportunities being created, and how many students are participating in them?
- To what extent are students taking part in a comprehensive STW experience--a combination of the three main STW elements?

Findings about implementation approaches and the availability of these activities in partnership schools are drawn primarily from the national local partnership survey and site visits conducted in the eight in-depth study states. Findings on student participation are based on the student survey in the eight states.

A. NEW EMPHASIS ON CAREER DEVELOPMENT

The STWOA encourages local partnerships to make a variety of activities (here, broadly labeled "career development") an integral part of education for students at all grade levels. Possibly beginning as early as the elementary grades, students are to engage in age-appropriate career awareness, exploration, and preparation activities. Schools are expected to help students learn about the world of work and develop awareness of their own interests and talents, as well as the ability to plan and decide--skills critical for advancing their careers throughout their lives. School personnel, perhaps with help from parents, local employers, and labor groups, are expected to provide and

support individual counseling and mentoring, group activities, and opportunities (both inside and outside of school) for students to explore career options.

Career development activities of some types have been practiced in schools for years, but usually in ways disconnected from the rest of the curriculum. Schools have long taken children on visits to local businesses and public agencies to expose them to what adults do at work. Middle schools and high schools have sought to help students prepare for postsecondary choices, mostly by offering individual guidance counseling, aptitude testing, advice on college admissions, and occasional presentations by local business people. However, in typical districts, middle and high schools conducted most activities in isolation from each other, with little attention to creating a comprehensive program of activities.

Many schools are changing the way they approach career development, however, and efforts to implement the STWOA have contributed to these changes. Two dimensions of these efforts are particularly important indicators of implementation progress:

- Emphasis placed on career development, relative to other aspects of STW systems
- Student participation not only in individual career development activities, but also in a progressive sequence of them

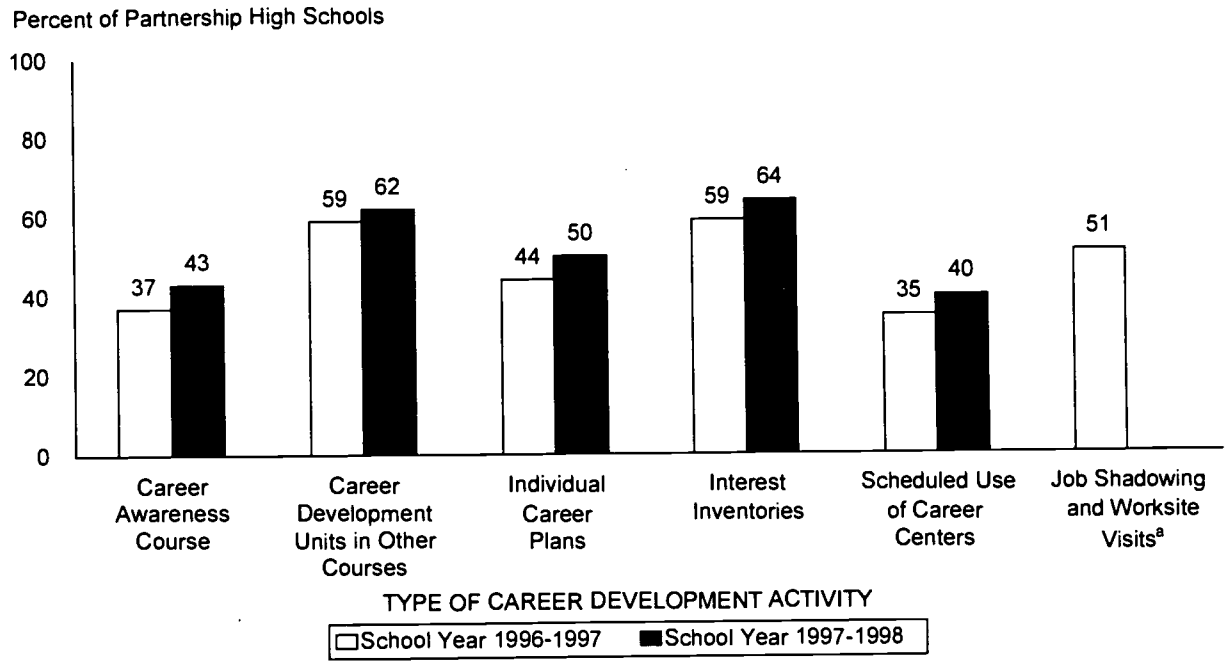
1. Career Development Activities Are a High Priority and Increasingly Available

From the beginning of federal support for STW systems (often, even earlier), career development has been the leading edge of STW activity at the state and local levels. In states like Florida, Kentucky, Ohio, and Wisconsin, career development was a key component of education reform directives and legislation in the late 1980s and early 1990s. Since then, many states have encouraged expanded career development in schools by creating models that follow the National Career Development Guidelines developed by the National Occupational Information Coordinating

Committee (Northwest Regional Educational Laboratory 1989). For example, six of the eight in-depth study states (Florida, Kentucky, Maryland, Ohio, Oregon, and Wisconsin) incorporate career development models in their STW implementation plans.

As STW implementation began, many schools were already making the kinds of activities described in such models available (Figure III.1). School year 1996-1997 was still relatively early in the STW implementation efforts of most states and local partnerships. Even then, however, many of the career development steps described in career guidance programs existed in 35 to 60 percent of the member high schools in all STW partnerships. These career development elements included special career awareness courses or units in other courses and students' completion of inventory questionnaires to analyze their own interests. Other activities included requiring students to develop

FIGURE III.1
GROWING AVAILABILITY OF CAREER DEVELOPMENT ACTIVITIES



SOURCE: STW local partnership survey, fall 1996 and fall 1997, Mathematica Policy Research, Inc.

[a] The latest data from local partnerships on worksite activities are for school year 1996-1997.

a tentative career and educational plan, scheduling time for them to use career resource centers, and creating opportunities for job shadowing or worksite visits.

A year later, in school year 1997-1998, availability of career development activities had generally increased. Across all STW partnerships (including ones newly established in 1997), for example, the percentage of member schools that required students to prepare an individual career plan grew from 44 to 50 percent, and scheduled use of career centers expanded from 35 to 40 percent of schools. Implementation progress was even greater among the older partnerships (those that responded to both the 1997 survey and the 1996 survey). Among these partnerships, growth in the availability of career development activities was even more substantial and consistent.

Approaches to career development vary widely across partnerships, and even across schools. Few partnerships involving more than one district attempt to create a consistent career development program throughout the partnership. Even within districts, schools often define their own activities. Some districts are concentrating on strengthening career development at the secondary level, while others are encouraging a more comprehensive approach that involves high school and middle school guidance and career counselors. In still other districts, elementary school teachers are introducing children to clusters of occupations as early as kindergarten.

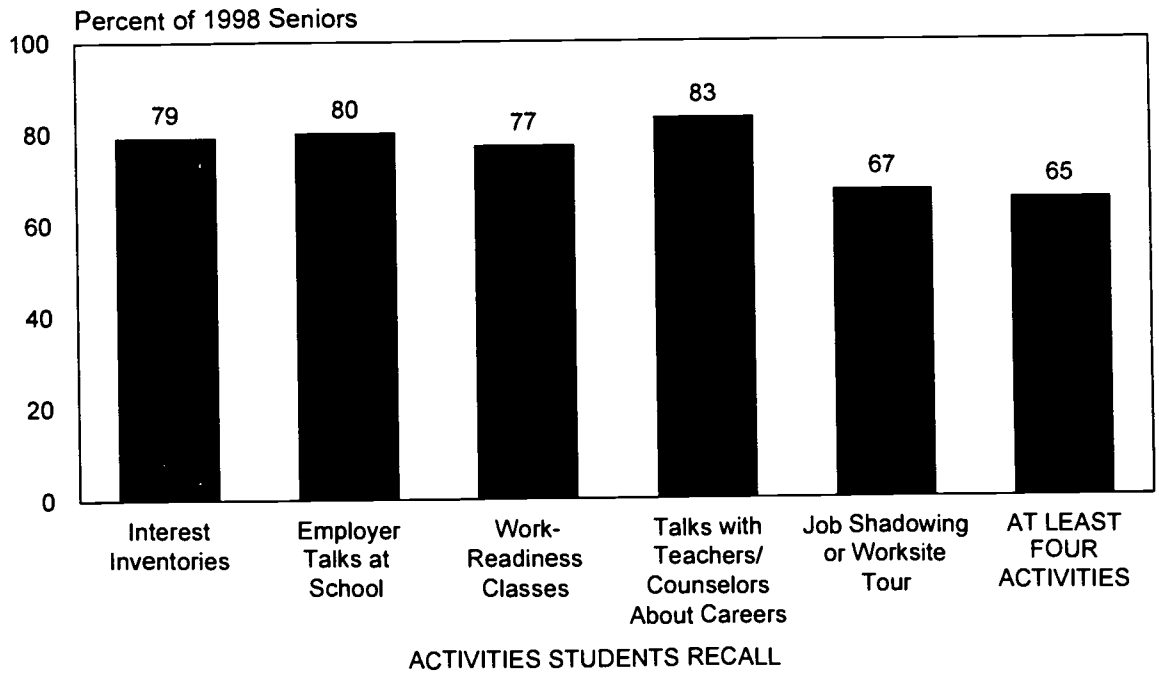
Within and across partnerships, alternative education providers, some of whom use a STW approach in serving at-risk students and school dropouts, are also implementing a variety of career development activities. About 73 percent of partnerships have at least one member--usually a community-based organization, college, or correctional facility--that provides alternative programs (such as GED or high school diploma preparation outside a traditional school). In school year 1997-1998, career development activities were integrated into the course work of about one-third of all partnership alternative education providers. Thirty-six percent of providers required their students

to complete interest inventories, and close to 40 percent provided participating students with individual career counseling. No substantial growth has been observed in these activities between school years 1996-1997 and 1997-1998, however.

2. Student Participation Is High and Growing, but Linking Activities Is Still a Challenge

All but one of the most common career development activities engage more than three-quarters of all students, and most high school students in the eight study states' STW partnerships participate in a variety of them (Figure III.2). At some point in their high school years, 77 to 83 percent of the class of 1998 in the eight states' partnerships had been involved at least once in the traditional in-school kinds of career development activities. Activities that involve going to employer worksites (job shadowing and worksite visits) were also common. Almost two-thirds of the students

FIGURE III.2
PARTICIPATION IN CAREER DEVELOPMENT:
ACTIVITIES STUDENTS EVER DID IN HIGH SCHOOL



SOURCE: STW 12th-grade student survey, spring 1998, Mathematica Policy Research, Inc.

had participated in at least four of these five types of activities--or what might be called a comprehensive set of career development activities.

To a large extent, these high participation levels undoubtedly reflect practices and programs that preceded the STWOA. However, STW implementation efforts are gradually helping to increase participation still further. For example, the percentage of students who had ever gone on a worksite visit or job shadow in the eight in-depth study states rose by a statistically significant margin, from 62 percent in 1996 to 67 percent in 1998. Most of this increase was due to an increase in participation in job shadowing (a major focus of many partnerships' implementation efforts), from 25 to 34 percent. The percentage of students who had ever taken a class focusing on work readiness or workplace behavior also rose significantly, from 72 to 77 percent.

Growth in the availability of career development activities sometimes is due to high-profile initiatives for students in certain grades. For example, because of promotion of job shadowing by the national School-to-Work office, many states over the past several years have made it a priority to expand that kind of activity. Some have set targets for substantial percentages of high school students to engage in at least one such experience, and expectations of state STW offices in turn have triggered much-publicized "Job Shadow Weeks." These efforts appear to have contributed to the substantial increase in participation reported by students in the eight in-depth study states.

Some districts, particularly in states that are promoting career development programs, go beyond such targeted initiatives and are developing more comprehensive strategies for career development from the elementary through secondary grades. They develop an inventory of existing activities that have been initiated by teachers, schools, or the district. Next, they identify the gaps that must be filled to create a coherent developmental program. Doing so typically requires cooperation among counselors across school levels and a commitment to creating an integrated sequence. In a few cases

observed in the in-depth study states, partnershipwide task forces spanning multiple districts have developed career development strategies; each district then implements these strategies as its own resources permit.

Usually, however, the implementation of career development programs is still more coherent and sequential from the standpoint of program designers than it is for students. Program designers plan activities to suit students' general level of awareness, experience, and curiosity in each grade level and the kinds of life decisions they face as they grow older. In the ideal comprehensive career development program, students will experience early activities that give them a broad awareness of careers. They then will use these early activities as a foundation for more focused exploration of particular careers and how they fit their interests. Finally, as they refine their goals, they will channel this focused exploration into more intensive experience of one career.

Case study observation suggests, however, that for most students the series of career development activities offered to them in school remains somewhat disjointed. There were rare examples in the in-depth study sites of effective, conscious linkages that used each career development activity to shape the next for individual students. For example, after 10th graders in some Michigan partnership schools took career interest inventories and talked to counselors about their career aspirations, counselors identified a group whose interests matched their aspirations and arranged for them to spend four days over a semester at a relevant workplace. Afterward, counselors helped participants select their courses for the next two years based on the refinements they had made in their career goals.[1] Most partnerships and schools, however, are still defining a comprehensive program and creating its distinct pieces. Lack of planning time, difficulty

[1]In this particular case, however, these linked activities involved only students with well-defined career interests. Implementing a coherent sequence for a broader set of students is more challenging.

maintaining communication among counselors across school levels, and the very large student loads most counselors carry have limited the attention that can be paid to making career development activities a progressive sequence for the individual student.

B. CHANGING THE SCHOOL CURRICULUM TO SUPPORT STW GOALS

Even with the changes envisioned in the STWOA, school-based learning remains the core of education. Despite the STWOA emphasis on partnerships with employers and on learning at workplaces, most formal education of students still occurs in school. The legislation aimed, however, to more effectively bridge the gap between academic and technical instruction in school and to promote the organization of students' school program around broad career areas (called career majors), while at the same time raising standards for student performance. The career majors would be defined course sequences or programs that would span secondary and postsecondary education to encourage students' transition to college or training. Accordingly, the evaluation examined each of the major elements of school-based learning the STWOA hoped to affect:

- Ways to provide a coherent focus and structure for students' course selections, through career majors
- Integration of academic and technical instruction through both content and instructional strategies
- Efforts to raise academic and technical skill standards
- Linkages between secondary and postsecondary programs

1. Schools Promote a Career Focus More Through Guidance than Structured Career Majors

The STWOA called for students to choose a career major in high school, with implications for their target career, the content of their studies, and a variety of linkages that would integrate their educational experience. Their choice of career major would imply a decision to prepare for entry

to a broad occupational cluster or industry sector. As a result, they would follow a sequence of courses specifically designed or selected to prepare for eventual employment in that field, probably after further education. Their program of studies would include an integration of academic and occupational instruction, work-based learning substantively connected to their school program, and links between their high school and postsecondary institutions that would promote continuation to more advanced instruction related to the career goal.

In part because of the considerable flexibility encouraged by the legislation, STW partnerships and member schools have interpreted the career major concept in diverse ways. As actually implemented, career majors are defined by three features that schools adopt in varying degrees:

- ***Having Students Express a Career Interest.*** Ideally, after substantial exposure to information about careers, their rewards, the education they require, and the industry settings in which they can be pursued, students might be asked to select a broad career area for which they wish to plan and prepare.

- ***Career Pathway Brochures as Course Selection Guides.*** Some partnerships and schools have developed charts for broad clusters of careers (such as "business and finance," "biological and life sciences," or "manufacturing and industrial technology"). These charts show the particular careers found in each cluster, the available academic and vocational courses recommended as preparation for the broad cluster, and the types of postsecondary education or training that would be appropriate. Guidance counselors use these course sequence "maps" to help students choose their classes, particularly electives.

- ***Defined Programs of Study.*** Some schools have created more structured programs, often clustering students with similar career interests together in some academic classes (and typically in a vocational class). Such clustering allows systematic tailoring of class content to the career focus and concerted efforts to expose students to all aspects of a particular industry. Some programs include relevant workplace experiences. These programs are often called "youth apprenticeships," "career academies," or "career magnet programs."

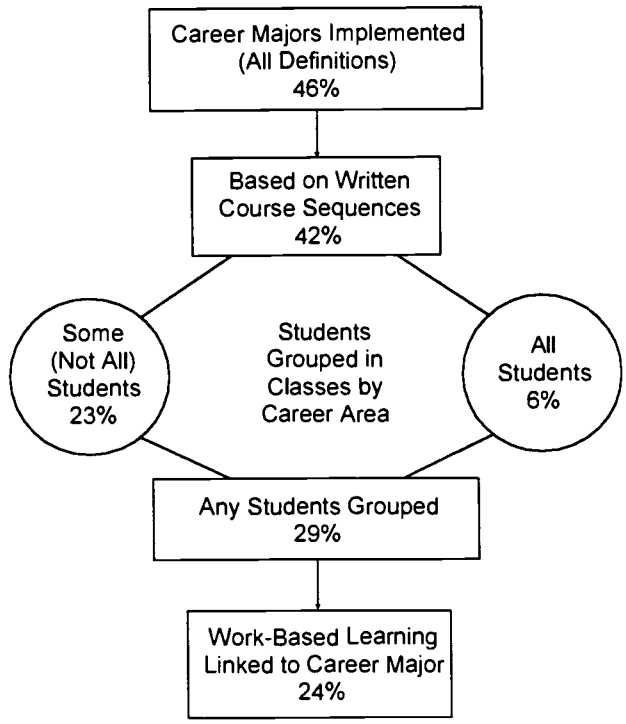
Career-focused programs of study--the career major concept closest to that in the legislation--are an exciting product of earlier efforts and more recent STW development. These structured

programs are often the most innovative, visible, and publicized part of a community's STW initiative. The programs of study usually feature a collaboration between a high school and one or several high-profile employers--these employers add prestige to the program. The career focus is often broad, designed to give students a technical and academic background for a set of related occupations, many of which require postsecondary education. Such programs have been created in some partnership schools, and their numbers are gradually increasing. Overall, however, these programs of study are still uncommon and serve small numbers of students.

A variety of evaluation data support this assessment of the prevalence of career major concepts. For example, the general idea of promoting formulation of a career aim to guide students' studies has fairly broad acceptance (Figure III.3). Overall, 46 percent of partnership high schools were reported in 1997 to have adopted some approach to career majors. Field observation suggests that, at a minimum, these schools are probably asking students to express a career interest at some point and to choose their electives based on this expressed interest. About 42 percent of high schools in STW partnerships were reported by the partnership coordinators in fall 1997 to have some form of career major that included written course sequences tailored to broad career areas--similar to the career pathway charts described earlier. More structured career major programs of study are found in about 29 percent of the schools, where at least some students are clustered together based on their career interests for at least some academic classes and possibly a vocational course. Field observation suggests that these are often schools that have created a career academy or youth apprenticeship program, and these usually involve a small group of students. It is unusual for schools to adopt this approach for all of their students. Only six percent of all schools do so, and survey data suggest many of these are vocational schools. Overall, about one-quarter of all partnership schools offer at least some students what comes closest to the program of study model

FIGURE III.3
DEFINITION AND PREVALENCE OF CAREER MAJORS IN SCHOOL YEAR 1997-1998

(Percent of Partnership High Schools)



SOURCE: STW local partnership survey, fall 1997, Mathematica Policy Research, Inc.

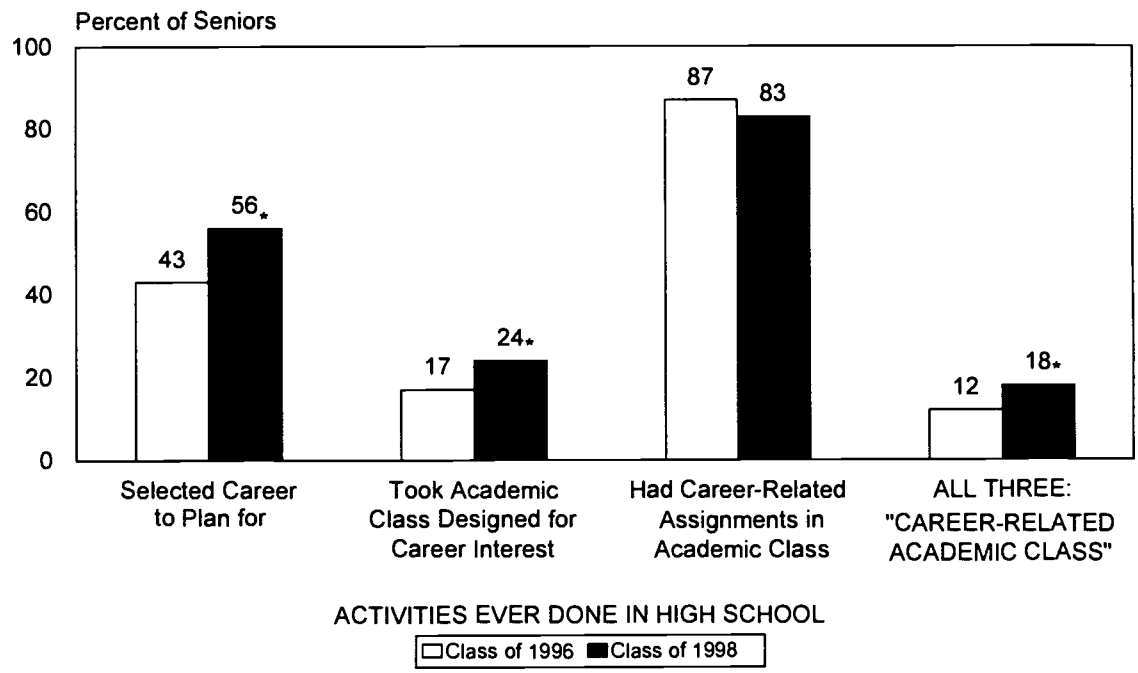
the STWOA promotes: a structured sequence of academic and technical courses linked to related work-based learning.

Guidance in course selection, then, is the most common approach to promoting a career focus for students' studies and affects the largest number of students. Students are encouraged to choose their electives (as well as which courses to take to fulfill graduation requirements) from existing offerings on the basis of some careful thought about their tentative career interests. Making this happen systematically and in a meaningful way for students is a challenge. Schools or partnerships

must prepare clear, informative materials about broad industry and career clusters. They must include information that will be useful for high-achieving students with career aspirations involving long postsecondary preparation, as well as information that can help students whose careers may begin right after high school. However, this approach is simpler to implement than more structured programs of study.

Students' perceptions of their high school experiences suggest that some progress is being made in focusing their attention on the connection between their course choices and future careers (Figure III.4). Surveys of high school seniors in the eight in-depth study states in 1996 and 1998 show increasing proportions who chose a tentative career interest to plan for as part of a school-based activity (56 percent in 1998, up from 43 percent in 1996). More students in 1998 said they

FIGURE III.4
STUDENT PERCEPTIONS OF CAREER FOCUS FOR THEIR STUDIES



SOURCE: STW 12th-grade student survey, spring 1996 and spring 1998, Mathematica Policy Research, Inc.

* Difference between class of 1996 and class of 1998 is significant at the .05 level, two-tailed test.

had taken at least one math, English, or science class they perceived as "designed specifically for students" with their career interest (24 percent in 1998, up significantly from 17 percent in 1996). By 1998, about 18 percent of high school seniors in the eight states had stated a career goal, taken an academic class they felt was tailored to their goal, and had career-related assignments in that class.[2] For analysis purposes, this combination of experiences is considered a "career-related academic class."

For reasons that are likely to persist, relatively little priority is being placed on developing more structured career major programs that might be more similar to the apprenticeship-type model emphasized in the STWOA. Many schools are not large enough to devote academic class sections to students with particular career interests, even broadly defined ones, particularly where students' career interests are diverse. Career-focused programs for an identified group of students often revolve around vocational programs, and the stigma still attached in many places to vocational education limits the appeal of these programs. Many parents and students see such programs as a "track" that does not lead to the four-year colleges they regard as the best path to success. Many students (and their parents) may accept the idea of formulating a career goal and considering it when they choose courses, but they view programs whose content is tailored to that career goal as restrictive. This is particularly true if, as suggested in the STWOA, the program involves career-related workplace activities that may crowd out other academic electives in their schedule (or extracurricular activities).[3]

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[2]This fraction includes students who may have been taking a traditionally defined course but whose own career interests inclined them to see the connection between its content and their goals: for example, students taking advanced placement biology who want to be physicians and perceive their classmates as all highly motivated to enter the life sciences or medical careers.

[3]See Section C for a discussion of workplace activities and their links to school-based learning.

2. Incremental Steps Are Being Taken to Strengthen Curriculum Integration

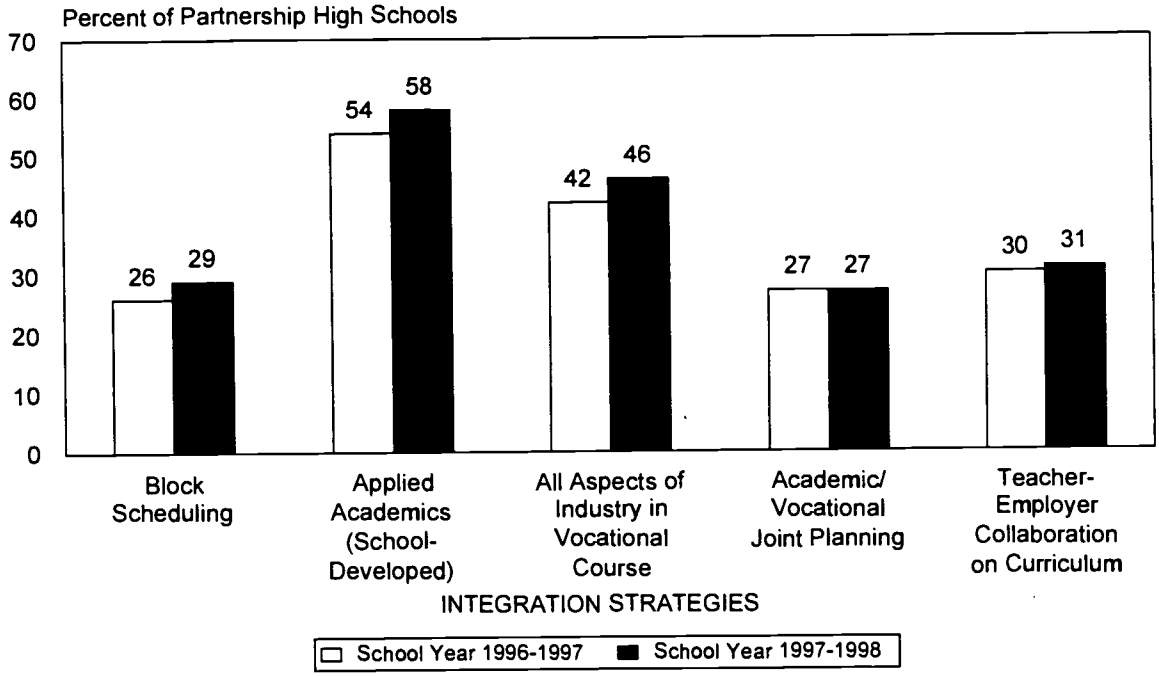
The STWOA added support for the idea of integrating academic and vocational instruction. Amendments in 1990 to the Carl D. Perkins Vocational and Applied Technology Education Act had mandated that vocational education programs be more integrated with academic instruction. In both cases, however, the legislation gives states, STW partnerships, and schools broad discretion in defining the forms of curriculum integration, whom it will affect, and how to make it happen. Whatever its form, its proponents view integration as a way to ensure that instruction in technical or practical skills includes a strong theoretical base and challenges students intellectually and that academic instruction emphasizes the ability to apply theoretical knowledge.

A variety of integration strategies are being pursued, many in a gradually increasing number of schools in STW partnerships (Figure III.5). These strategies fall into three main categories:

- ***Changes in the Format of Instruction.*** An increasing number of schools are adopting block scheduling, replacing traditional 50-minute class periods with schedules in which classes are less frequent but 90 minutes long, a more convenient format for hands-on instruction and application of skills. Site visits suggest that, in some places (particularly rural areas), project-based learning is the favored approach to integration, ideally requiring students to practice and strengthen skills as they work in a team to accomplish a task.

- ***New Curriculum and Instructional Methods.*** Introduction of more applied and project-oriented instructional materials and methods in academic classes is widely pursued (although sometimes only in a few classes in each school). At the start, these changes are often accomplished by purchasing commercially available curriculum packages. An increasing number of schools, however, are now relying on their own teachers to develop materials or on materials their state education agency provides. Efforts are also being made to broaden career-related content in vocational and some academic classes to expose students to all aspects of the industry the class focuses on.

FIGURE III.5
APPROACHES TO INTEGRATING ACADEMIC AND VOCATIONAL INSTRUCTION



SOURCE: STW local partnership survey, fall 1996 and fall 1997, Mathematica Policy Research, Inc.

- ***Collaboration Among Teachers and with Employers.*** Some approaches stress opportunities for teachers to learn from each other and integrate their efforts: team teaching by academic and vocational teachers; joint planning time for teachers of related subjects that are part of a career-oriented program; and having teachers and employers work together to develop instructional materials. The partnership survey, however, gives no indication that these approaches are becoming more widespread.

Conscious promotion, guidance, and assistance from the state level (including initiatives in the in-depth study states) often encourage these efforts. For example, Michigan has developed curriculum frameworks that increase emphasis on application of academic skills and employability skills such as those stressed by the Secretary's Commission on Achieving Necessary Skills (SCANS). Maryland, Kentucky, and most other states have provided teacher workshops on "blended instruction" or project-based learning, or sponsored teacher institutes on applied academic curricula

and instructional methods. Ohio has revamped the definitions of approved vocational programs. incorporating more academic instruction.

In every school, however, there are limits to the support for curriculum integration and constraints on its progress. Site visits for the in-depth study made it clear that, in many schools, academic teachers are less interested than vocational teachers in changing curriculum strategy. Academic teachers are often concerned that incorporating more practical and hands-on learning will take time and attention away from the more traditionally defined academic skills they consider critical to their students' success in standardized testing, college admissions, and more advanced study. In many schools, academic and vocational teachers still have little interaction or knowledge of each other's interests. Some schools and teachers are skeptical of instructional approaches that colleges and universities may not recognize as contributing to a college-prep curriculum. For example, applied science classes do not fulfill admissions requirements at some postsecondary institutions. Practical resource issues are also a constraint; teachers commonly complain that they do not have the considerable time needed to devise new curriculum and teaching strategies.[4] Often a few teachers are active proponents of integration and energetically involved, but remain the exception in their school.

3. STW Implementation Does Not Emphasize Academic or Industry Skill Standards

One of the underlying premises of the STWOA is that integrating the applied and contextual methods of vocational instruction with the more theoretical and abstract instruction typical of traditional academic instruction can help schools raise standards and achievement for all students.

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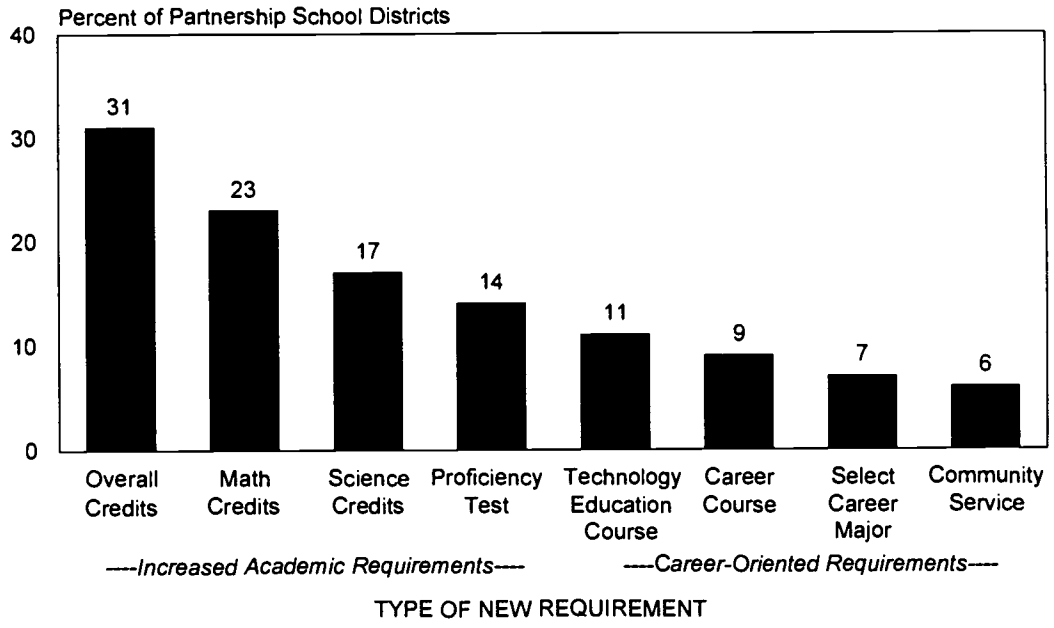
[4]Many schools that switch to block scheduling, which often signals increased emphasis on applied learning, are able to do so only after winning faculty support by incorporating increased planning time for teachers into the revised schedule.

Introducing more practical approaches to teaching math, science, and communications, giving students opportunities to apply what they learn in projects or at workplaces, and making the academic curriculum relevant to students' career goals are all seen as ways to strengthen students' motivation and capitalize on the natural learning styles of many youth. Thus, proponents see aspects of STW implementation that add hands-on experiences and workplace activities as ways to help many students reach higher academic achievement.

The STWOA also envisioned raising standards for vocational programs, infusing more academic content and strengthening technical content to meet the expectations of national industry groups. One aim of the legislation was to create widespread opportunities for students to earn portable credentials, certifying that they have met industry skill standards that employers throughout the nation in a particular field of work would recognize. Ideally, such skill standards would ensure that those who complete vocational programs are equipped with the high-level critical skills employers want, not just narrowly defined or quickly outdated technical skills.

Districts are raising graduation requirements, with a focus on academics. In the 34 states whose STW partnerships were surveyed in 1997, widespread steps have been taken to establish new requirements for high school graduation, some initiated at the state level, some by individual school districts (Figure III.6). Between 1994 and 1997, almost one-third of all districts in local partnerships had increased the number of academic credits required for graduation. Increased requirements for credits in mathematics and science were instituted in this three-year period in 23 and 17 percent of

FIGURE III.6
INTRODUCTION OF NEW GRADUATION REQUIREMENTS: 1994-1997



SOURCE: STW local partnership survey, fall 1997, Mathematica Policy Research, Inc.

districts, respectively. Proficiency examinations required for graduation were introduced in about 14 percent of districts. In most states, however, such changes in graduation requirements are part of a broader set of reforms guided by recently developed state curriculum frameworks, initiated independently, and sometimes before the creation, of STW partnerships.[5]

Steps have also been taken, but less commonly, to require that students engage in the kinds of applied and career-oriented learning activities that the STWOA promotes (Figure III.6). About one district in nine over the past three years introduced a requirement that all students take some kind of technology education course, and almost as many began requiring students to take a course on

[5]Later analysis of high school transcripts for the 1998 and 2000 student cohorts in this evaluation will show whether these reported graduation requirements are leading to an actual shift in the amount and levels of key academic courses that students are completing. These measures will provide (at least for eight states) measures comparable to some of the criteria that make up Department of Education performance measures under the Government Performance and Results Act of 1993 (GPRA). Appendix B presents estimates of these measures for the 1996 sample.

careers. Other changes have been introduced as well, such as requiring students to indicate a career major or perform community service.

STW leaders view curriculum integration, applied learning, career-focused studies, and workplace activities as consistent with higher academic standards. However, this is not always the perception at the school and classroom level. Some school administrators and teachers encountered in case study site visits feel that emphasizing proficiency tests conflicts with some of the key STWOA elements, discouraging academic teachers from collaboratively developing integrated curricula or supporting work-based learning activities for students. In Oregon, for instance, where a statewide proficiency test is now a major criterion for awarding Certificates of Initial Mastery, many teachers and administrators report that requiring the test has slowed or even reversed STW implementation progress.

Use of industry skill standards is still uncommon, and low priority. Steps have been taken at the national level to encourage the development and use of industry skill standards to raise the technical competence and general readiness for employment of students in career-focused programs. Twenty-two industry skill standards projects, undertaken by business-education partnerships, were funded by the Department of Labor (DOL) and the Department of Education (ED). Title V of the Goals 2000: Educate America Act of 1994 subsequently established the National Skill Standards Board. The STWOA called on partnerships to develop school-based and work-based learning that would culminate in the award of skill certificates.

To date, however, although states have shown interest in using skill standards, actual implementation remains scattered and applications are generally narrow. Just 13 percent of secondary schools in STW partnerships awarded any skill certificates based on local-, state-, or national-level industry standards in school year 1996-1997, to fewer than 4 percent of 12th-grade

students. Some expansion of skill standard use is occurring, but slowly; among partnerships that responded to both the 1996 and 1997 surveys, for example, there was a small (two percentage point) increase in schools awarding industry skill certificates.

Partnership leaders attribute the lack of widespread adoption of these standards to a variety of factors. Some see only modest business support for skill standards; employers seem more concerned about students' lack of basic educational skills than about their specific occupational training. Some observe that, in a strong economy with labor supply tight, employers are looking for youth with strong basic skills and work ethic and are willing to train them. Employers in some states have found that some of the National Skill Standards projects do not match their needs. For example, in one partnership in Maryland, local employers reviewed the proposed national skill standards for computer-assisted drafting and design to help develop an intensive work-based learning program, but found the identified competencies did not match the skill needs of their firms. Introduction of skill standards in the classroom occasionally raises problems; in Ohio, state STW leaders reported that, because teachers were not involved in the initial design of the state's occupational competencies, they often misinterpreted the competencies defined by employers. In one Maryland county, teachers found that the national standards they were working with specified a skill list too extensive for their courses, so they focused only on the skills they believed students needed in the local economy.

Examples of focused skill standard implementation do exist, however. For example, the case studies included a career technical center in the Macomb County, Michigan, partnership that in 1997 was the first site to be certified by the National Institute for Metalworking Skills. Participating students take a demanding vocational course linked to a high-standard mathematics course, and members of the class of 1997 were among the first nationwide to take and pass national credentialing

exams. Between 1994 and 1997, Maryland designed performance specifications for about 20 of its 60 occupational programs, 4 of which are based on national skills standards, and is continuing this process for additional programs related to projected high labor demand occupations. Skill specifications are distributed to schools on computer disks, so specifications can be easily updated to reflect evolution in industry standards. To obtain state funding, all vocational programs in these areas must use these standards as the basis for their curriculum. In general, however, adoption of national skill standards has not yet gained wide support, and such examples are unusual.

Industry input is more commonly provided by groups of local employers who advise a school's vocational programs or apprenticeship initiatives or provide general guidance on the skills employers are seeking. In some areas, new forms of employer and educator collaboration have developed for this purpose. For example, all 10 of the school districts in the Coos Bay STW Partnership in Oregon conduct semiannual meetings where employers identify for educators the skills they are seeking in employees. In the Boston STW partnership, employers review a set of broad competencies for the partnership's career pathways that serve approximately one-quarter of the students in the Boston public high schools. While these committees often provide useful input to curriculum development, they typically neither define specific standards for gauging students' progress, nor create a basis for portable credentials recognized by an industry across the country.

4. Secondary-Postsecondary Curriculum Links Are Not Yet Central in STW Efforts

The STWOA recognized the importance of helping students pursue postsecondary education and increasing the number who do so. Much of the impetus for STW legislation stemmed from the belief that postsecondary education and training are increasingly important ingredients of students' eventual career success. Accordingly, the legislation calls for "effective linkages between secondary

and postsecondary education" (Sec. 101) in STW systems, and for career majors that include "at least 1 or 2 years of postsecondary education" in the designated sequence of courses (Sec. 4).

At least in early STW development, however, strengthening curriculum links between high school and postsecondary education has been emphasized less than changing secondary education experiences. To be sure, high schools and colleges have established institutional arrangements that allow them to share information and sometimes equipment or training (although the prevalence of these arrangements has not increased recently, as noted in Chapter II), and college representatives are often part of STW partnership governance. However, partnership surveys in both 1996 and 1997 showed that coordinators place lower emphasis on linking students' secondary and postsecondary experiences than on other STW elements that focus on high school experiences, such as improving career guidance, engaging more employers, linking school- and work-based learning, and organizing professional development. About 60 percent of coordinators rate each of these elements that focus on changes in the high school experience a "high priority." In contrast, about 40 percent of coordinators rate linking high school and postsecondary education as high priority.

Partnership coordinators and other local STW leaders do not ignore the importance of promoting postsecondary enrollment, but they typically do not address this goal with STW implementation strategies specifically designed to forge new or closer links between the curricula of high schools and colleges. In site visit discussions, they often noted two practices (usually long-standing, rather than new, efforts) that they view as aimed at improving postsecondary enrollment.

Articulation is common, but a minor factor in increasing college enrollment. Well before passage of the STWOA, many states established policies on articulation of high school and community college courses. These efforts gained momentum as part of Tech-Prep reforms in the early and mid-1990s. Formal articulation agreements were already widespread in 1996, when most

states and partnerships were developing their STW initiatives. The first partnership survey showed that, by 1996, about half of all partnership schools had developed articulation agreements with postsecondary institutions that allow students to earn college credit or advanced standing for secondary school course work. This proportion remained about the same the next year.

Articulation has received little emphasis from STW partnerships and their members, for two reasons. First, articulation generally focuses on two-year colleges, while many partnerships have been working hard to avoid the impression that STW opportunities are intended primarily for students not expecting to attend four-year postsecondary institutions. Second, the goal of articulation--smoothing transition to college--relied to some extent on the creation of seamless, occupationally focused programs that students would begin in high school and complete in a community college. These programs, similar in concept to structured career majors, are not a focus of STW implementation efforts. The less ambitious but more common forms of articulation, in which one or more high school courses are articulated with a single, introductory course at the community college level, are unlikely to influence enrollment in postsecondary institutions, in part because relatively few students take advantage of these agreements (see Hershey et al. 1998).

Career planning is the most common approach to promoting postsecondary education. At least for now, the primary influence on students' postsecondary plans is through activities in high school that help them clarify the connections between career goals and educational paths. Site visits suggest that these include (1) attending career and college fairs, (2) discussing educational requirements for particular careers with employers (for example, during a job shadow or worksite visit), (3) research in a career center on the characteristics of occupations of interest, and (4) developing educational plans or using career pathway charts that specify postsecondary courses relevant to their career goals. The STW emphasis on career development experiences may be

increasing the prevalence of these planning and decision-making activities (see Section A), some of which were already in place prior to the STWOA. No rigorous studies have been conducted to determine whether these activities have an impact on students' postsecondary enrollment, however.[6]

C. WORK-BASED LEARNING

The STWOA promotes work-based learning, particularly workplace experience, as a way to reinforce and complement school-based learning. The legislation envisions workplaces as "active learning environments" where students can develop teamwork and problem-solving skills, technical skills, a concrete sense of career opportunities, and an ability to apply what they learn at school.

The vision of work-based activity set out in the STWOA builds on and broadens conceptions of workplace learning already in use before the legislation. DOL and several states had funded STW demonstrations, most of which were modeled after European apprenticeship programs (Silverberg 1996). In both the federal and state demonstrations, employers provided extended work and training experiences (typically paid ones) that were related to students' career interests and linked to some aspect of their school program. These initiatives generally involved a small number of students, most enrolled in vocational programs. The intensive, paid worksite activities they created served as the model for the work-based learning activities given the greatest emphasis in the STWOA.

By the time the STWOA was enacted, however, many policymakers saw a need to promote a variety of work-based learning activities to ensure that a broad range of students could benefit. On the one hand, the STWOA emphasizes intensive worksite activities resembling apprenticeship programs. It makes it mandatory for states and local STW partnerships to implement "planned

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[6]The evaluation's student surveys can measure trends in outcomes, but not impacts on individual students. The surveys of seniors in the class of 1996 and the class of 1998 show no growth in the fraction of students planning to attend college.

programs of job training and work experience" coordinated with students' school-based activities and relevant to their career majors. The STWOA instructed DOL and ED, in making grants to states, to "give priority to applications that require paid, high quality work-based learning experiences as an integral part of [the state's STW] system." On the other hand, the STWOA identified as "permissible" a variety of less intensive work-based learning activities for which funding could be used. Partnerships could use funding for school-based enterprises: student-run businesses (such as a school store, restaurant, or bank) managed by students. Job shadowing experiences and other worksite observation activities were also permitted; these typically involve brief visits to worksites and (sometimes) opportunities for students to learn about the work of a particular employee. Since these brief activities can be implemented more easily than more extended forms of workplace activity, they can serve career development purposes for all students in a school.

The mix of work-based activities available in a school affects the kinds of skills students have an opportunity to develop. Worksite observation gives students a chance to learn about careers but does not necessarily help build employability or technical skills. School-based enterprises may not provide much information about careers but usually offer opportunities to develop management, problem-solving, and other general employability skills that employers value. The more intensive workplace activities emphasized in the STWOA are designed to cultivate students' career awareness and general employability skills and to enhance specific skills and knowledge relating to a career of interest.

Conclusions about whether a system of work-based learning is emerging as envisioned in the STWOA depend on the opportunities being created for students. The evaluation analysis focuses on three issues:

- ***Prevalence.*** The scale at which schools have made available various kinds of work-based activities and involved students in them

- ***Quality.*** Whether the workplace activities schools provide are of higher quality than experiences students find on their own, and whether participation in high-quality activities is expanding

- ***Factors Affecting Scale and Quality.*** The factors that must be dealt with in efforts to expand and improve work-based activities

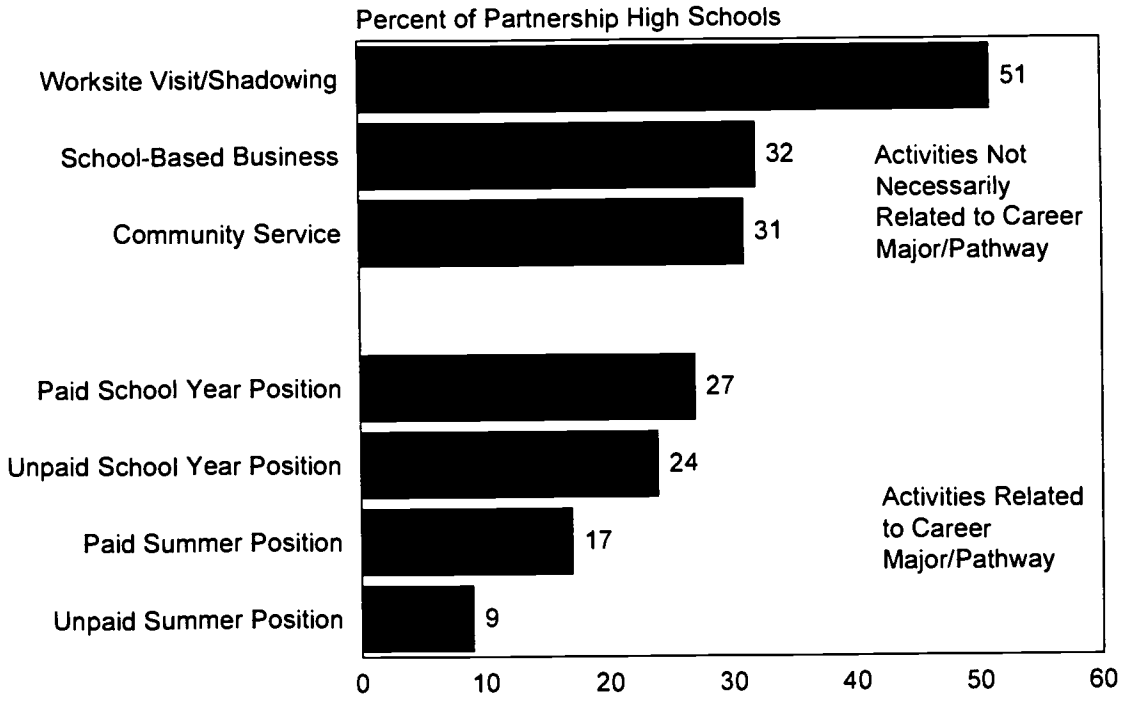
1. Brief Worksite Activities for Career Exposure Are Most Prevalent

The STWOA emphasized the more intensive types of work-based learning, but it allowed states and local partnerships considerable latitude to develop a mix of work-based activities that reflects their resources and the interests of local employers, schools, students, and parents. The relative prevalence and growth of specific work-based activities reflect these local resource constraints and interests.

The brevity of worksite observation activities makes them easier to implement on a large scale than the more intensive activities the STWOA highlights. Since worksite visits and job shadowing last only a few hours, they are less complicated for employers and schools to plan and implement. Parents and school staff often find them appealing because they interfere for only a few hours with other school or after-school activities. Students may be able to visit several employer sites and learn about a broader array of careers than if they commit to longer activities at a single workplace.

In part because of these advantages, worksite observations have become the most widely available work-based learning activity. By school year 1996-1997, local partnerships reported that 51 percent of their member high schools were sponsoring worksite observation activities--substantially more than for any other work-based activity (Figure III.7). Among older partnerships that responded to both partnership surveys, the school-level availability of worksite observation

FIGURE III.7
AVAILABILITY OF WORKPLACE ACTIVITIES IN SCHOOLS
SCHOOL YEAR 1996-1997



SOURCE: STW local partnership survey, fall 1997, Mathematica Policy Research, Inc.

activities had risen by six percentage points from the previous year--more than any other work-based activity (not shown in figure).[7]

Brief worksite observation activities also involve the most students and have the fastest-growing participation rates (Figure III.8). Even among the 1996 seniors surveyed in the eight in-depth study states, more than three out of five (62 percent) had participated in some worksite observation activity during high school.[8] Two years later, 67 percent of the 12th-grade students surveyed said they had

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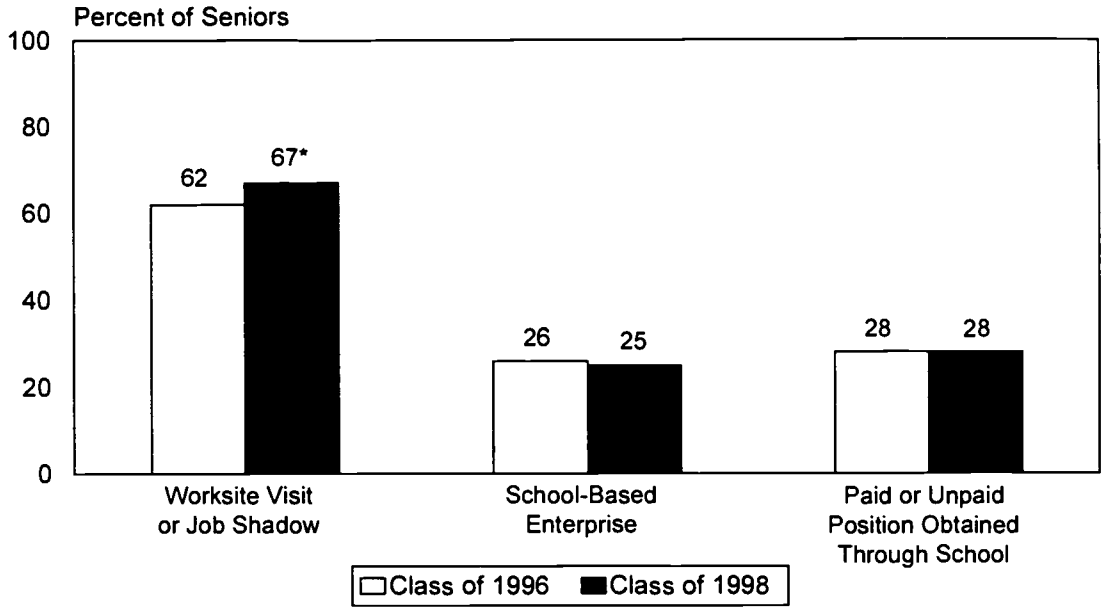
[7]Worksite visits and job shadowing are also the most widely available work-based activity offered to at-risk students and dropouts by alternative education providers. However, the partnership surveys suggest that the prevalence of such experiences for these students, along with other forms of work-based learning, declined between school years 1995-1996 and 1996-1997.

[8]Worksite visits were reported most commonly (57 percent), but job shadowing was reported (continued...)

FIGURE III.8
STUDENT PARTICIPATION IN WORK-BASED ACTIVITIES
CLASSES OF 1996 AND 1998



SOURCE: STW 12th-grade student survey, spring 1996 and spring 1998, Mathematica Policy Research, Inc.

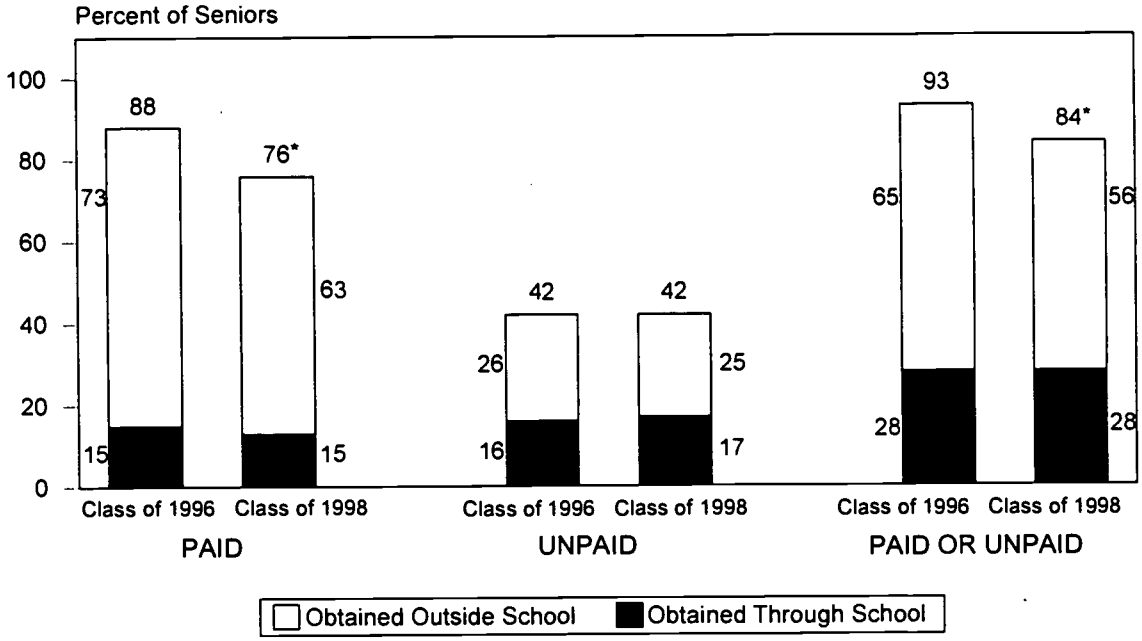
* Difference between the class of 1996 and class of 1998 is significant at .05 level, two-tailed test.

participated in worksite observation activities--a significant increase over the 1996 rate. Most of the growth is due to the expansion of job shadowing activities; participation in job shadowing grew by about a third in the two-year period, from 25 to 34 percent (not shown). Other work-based learning activities engage fewer students and have not grown from 1996 to 1998. For example, about 28 percent of the class of 1998 had at some point held a paid or unpaid workplace position that they found through school, the same fraction as for the class of 1996.

The opportunities students get through school are only part of their contact with workplaces, however. Most students find paid jobs, unpaid internships, volunteer work, or community service on their own (Figure III.9). These activities are potentially important to STW system building,

[8](...continued)
by 34 percent of the sample (not shown in figure).

FIGURE III.9
FRACTION OF STUDENTS OBTAINING WORKPLACE POSITIONS CLASSES OF 1996 AND 1998



SOURCE: STW 12th-grade student survey, spring 1996 and spring 1998, Mathematica Policy Research, Inc.

* Difference between the class of 1996 and the class of 1998 is significant at the .05 level, two-tailed test.

because some partnerships and schools report plans to try to link the work experiences to school, or at least to draw on them for classroom assignments. However, the focus of most partnerships' efforts is still on expanding and improving the experiences they help students find. The fraction of students who found paid and unpaid workplace activities through school programs remained the same between 1996 and 1998, and the fraction of overall workplace experience that was through school programs remained about constant.[9]

[9]In the survey of the class of 1998, students were less likely than in 1996 to report having had paid employment in general, and specifically paid jobs they had found on their own. This result departs from national findings in the Current Population Survey, which suggests that the employment rate of high school students nationally remained fairly stable during this period. It is possible that labor market conditions or other factors affecting students in the in-depth study schools may have been somewhat different from average conditions nationally.

2. Quality of STW Intensive Workplace Activities Is High, but Growth Not Yet Apparent

If implementation is successful, STW systems could increase the prevalence of high-quality workplace experiences for students. Most students work at some time during high school, and (at least in the current economy) most students can get some kind of job. The challenge is finding a position that provides a learning experience. While students can learn something from almost any employment (if only about employers' general expectations), casual observation suggests that learning opportunities at the jobs teenagers most commonly find on their own are usually brief or unstructured or both, and have little relation to their career interests or school program. STW initiatives could enhance students' workplace experiences in at least four ways whose incidence can be measured in this evaluation. These initiatives could (1) help obtain positions that correspond to students' diverse interests, (2) structure worksite activities to provide more training and opportunities to learn about careers, (3) provide constructive feedback to students on their worksite performance, and (4) make connections between students' school- and work-based learning so they complement and reinforce each other. Analysis of the student survey can address two general questions about these potential features of work-based activities:

- Are the workplace positions that students obtain through school actually of higher quality than those they find on their own?
- Over time, does the quality of worksite opportunities improve?

Positions obtained through school provide greater learning opportunities. One of the primary connecting activities the STWOA promotes is the process of matching students with worksite opportunities. The matching process, as observed in this evaluation, occurs to some extent in schools' work experience and cooperative education programs predating the STWOA. Some local partnerships and schools have established new programs involving workplace components, and some

partnerships have established special database programs that list employers and allow students to search for opportunities.

The workplace activities available to students are thus a mix of new initiatives and traditional programs. Although the traditional programs often focus narrowly on students in vocational programs, their goals are compatible with STW objectives: to provide work experiences related to students' career interests and at least one of their high school classes.[10] Past research, however, suggests that the connections between the positions obtained through these programs and students' school curricula are often weak.[11] Many local partnerships and some states are attempting to enhance these programs. Some of their efforts started early enough to have potentially affected the high school experience of the class of 1998.[12]

This combination of traditional and newer workplace opportunities offered through schools has important advantages over the workplace activities students report finding on their own. On the basis of student responses to the most recent 12th-grade survey in 1998, the evaluation analysis identified four qualitative differences in the worksite learning experiences students receive through school programs and contacts, particularly in paid positions:[13]

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[10]Cooperative (co-op) work experience, one of the most common type of programs, requires student positions to be related to at least one high school class (typically a vocational class), but often allow students to find their own positions.

[11]The connection between students' co-op jobs and school curriculum tends to be weaker in "diversified" co-op programs where the school staff supervising students' work experiences are responsible for students in many different career areas (Stern et al. 1990).

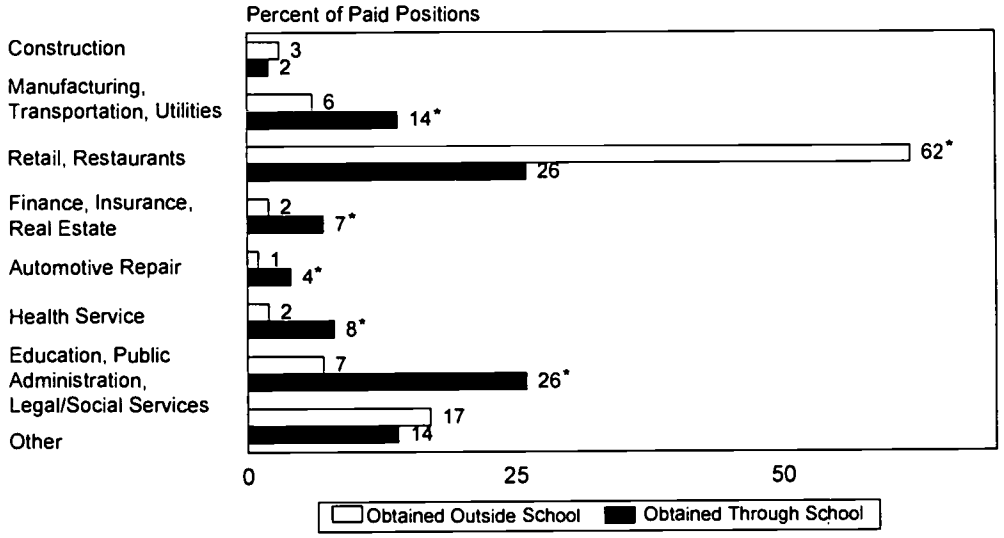
[12]For example, by 1996, Wisconsin had created a new "Skill Certified Co-op" program that requires participants to have a paid work experience of at least 480 hours, complete at least 90 percent of the state-approved industry competencies, and take at least two semesters of related school classes. By 1996, both Ohio and Michigan had created apprenticeship programs for high school students.

[13]The fact that qualitative advantages are less evident for unpaid positions is discussed in the (continued...)

- ***Access to More Diverse Workplaces.*** Schools develop positions in a wide range of industries, increasing the chances that students can work in a setting relevant to their career interests (Figure III.10). Paid positions that schools develop are particularly diverse; they are less likely than jobs students find on their own to be in the retail or restaurant sectors and more likely to be in financial services, health care, and education (industries of interest to many students). Unpaid positions obtained through school are in less diverse settings; over 40 percent are in schools (not shown in figure). However, survey data suggest that the mix of volunteer jobs within schools is varied, including tutoring students, administrative tasks, and helping to manage sports teams and events.

- ***More Job Time Spent in Training and More Access to Career Information.*** Students were asked what fraction of the time at their workplace was spent "doing regular work" and what fraction was spent "being trained or practicing skills." In paid jobs, they were more likely to spend at least half their time in training if they had found their job through school (Figure III.11). They were also more likely to have chances at the worksite to discuss career options with adults. About 58 percent of students who had secured a paid position through school reported discussing possible careers with adults at their workplace, compared to 40 percent of those who had found their positions independently.

FIGURE III.10
INDUSTRIES IN WHICH STUDENTS HAVE PAID POSITIONS
CLASS OF 1998

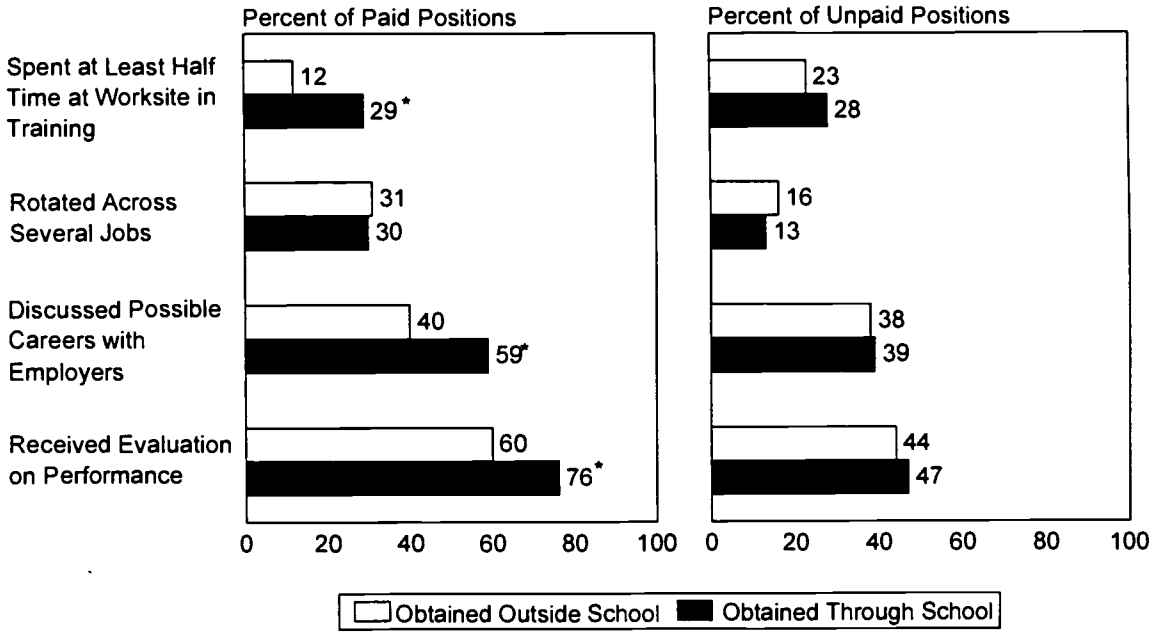


SOURCE: STW 12th-grade student survey, spring 1998, Mathematica Policy Research, Inc.

* Difference between positions obtained outside school and through school is significant at .05 level, two-tailed test.

[13](...continued)
next section.

FIGURE III.11
LEARNING OPPORTUNITIES IN WORKPLACE EXPERIENCES
CLASS OF 1998



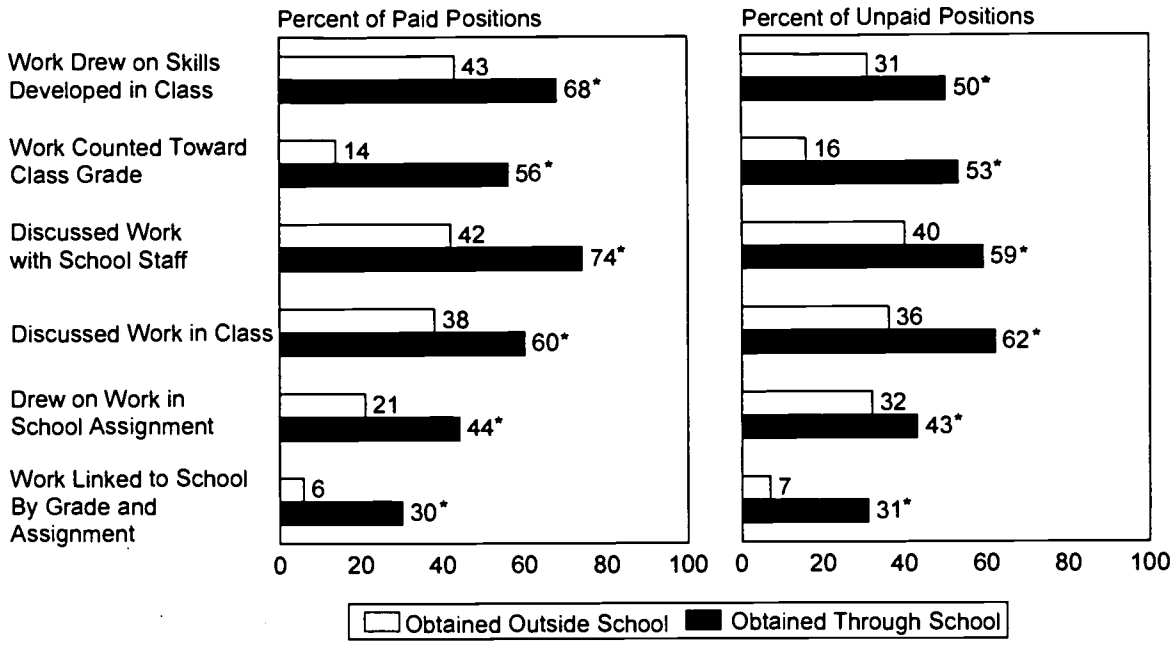
SOURCE: STW 12th-grade student survey, spring 1998, Mathematica Policy Research, Inc.

* Difference between the positions obtained outside school and through school is significant at .05 level, two-tailed test.

- ***More Feedback on Performance.*** Students in positions arranged through school were more likely to receive a performance evaluation from school or employer staff (Figure III.11). These students were also more likely to discuss their work experience with school staff and to have their worksite performance count toward a grade at school (Figure III.12).

- ***Links Between School and Workplace More Common.*** Students who had obtained positions through school were more likely to see substantive connections between their studies and work experience (Figure III.12). For example, they more often reported using academic or technical skills learned in school at the workplace. They were more likely to draw on their work experience in school assignments or discussions. However, visits to high schools suggest that these links often are not deep. Teachers sometimes ask students to write an essay or make a presentation about their work experience; this may enhance communication skills and give students an opportunity to reflect on career goals, but it is unlikely to advance students' analytic or technical skills. Some workplace positions allow students to practice what they learn in a vocational class, but the skills refined in this fashion are often narrow.

FIGURE III.12
WORK-SCHOOL LINKS EXPERIENCED BY STUDENTS
CLASS OF 1998



SOURCE: STW 12th-grade student survey, spring 1998, Mathematica Policy Research, Inc.

* Difference between the positions obtained outside school and through school is significant at .05 level, two-tailed test.

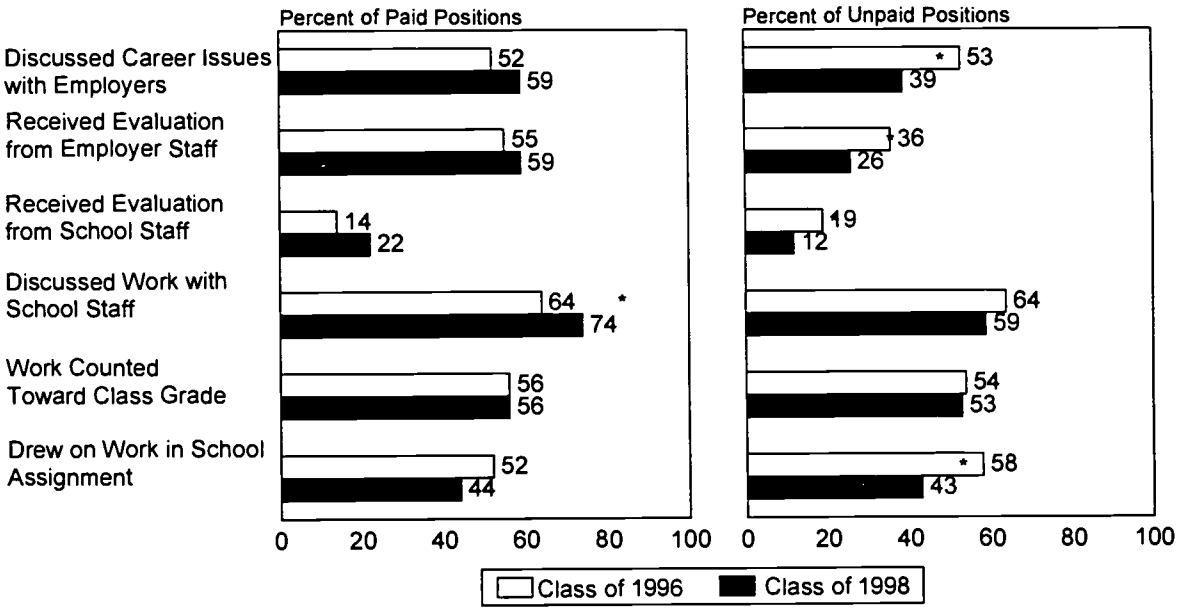
Schools are paying more attention to supporting paid workplace activity. Site visits in the eight in-depth study states identified schools that are trying to strengthen their traditional work experience programs and (in some cases) to create new programs with high-quality workplace components, often on a relatively small scale. One ingredient in strengthening traditional programs is to ensure a higher level of staff involvement in developing, selecting, and then monitoring the workplace activity. In some sites, for example, co-op programs in recent years had shrunk and suffered from budget reductions affecting the time a coordinator could devote to the program. Some schools are now attempting to reverse such trends as they seek to expand and improve worksite activities for students.

Whether due to improvements in traditional programs or to the introduction of new ones, there are some signs that school personnel are more involved in monitoring and supporting at least paid

workplace activity. Among students who had obtained a paid position through school, those in the class of 1998 were more likely than those in the class of 1996 to report talking about their work experience with school staff (Figure III.13). A generally positive shift appears to be emerging, although other differences are not statistically significant.

For unpaid worksite activities students get through school, however, there may be changes that reduce average quality as it can be measured. For example, students in the class of 1998 who had held such positions were less likely than those in the class of 1996 to say they had ever discussed career issues with employer staff. The 1998 seniors were also somewhat less likely to have received an evaluation of their worksite performance from their employer or from school staff. One possible explanation for these changes is that partnerships and schools are increasingly emphasizing brief

FIGURE III.13
SELECTED QUALITY INDICATORS IN POSITIONS OBTAINED THROUGH SCHOOL CHANGES FROM 1996 TO 1998



SOURCE: STW 12th-grade student survey, spring 1996 and spring 1998, Mathematica Policy Research, Inc.

* Difference between the class of 1996 and class of 1998 is significant at .05 level, two-tailed test.

workplace visits and job shadowing, as well as community service experience, which focuses more on service than careers.[14] Community service positions might last only a few days, focus more on service than careers, and provide little opportunity for development of stronger links between workplace and school staff.

Expanding prevalence of substantive workplace-classroom links is difficult. Despite schools' increased involvement over the past two years in monitoring workplace activity, the substantive links between students' work-based learning and what goes on in the classroom have not grown noticeably stronger. Surveyed students in the class of 1998 were actually less likely than the 1996 seniors to report drawing on work experience they had found through school to complete a classroom assignment (Figure III.13). Teachers may be increasingly referring in general terms to the usefulness of classroom lessons in the workplace or to the careers that could be related to these lessons. However, they do not appear to be systematically increasing use of students' workplace activities in structuring classroom assignments.

Similarly, measures of the prevalence of workplace activity that is connected substantively and procedurally with students' school program show no clear expansion. From the 1996 and 1998 surveys, students were identified as having had a "linked work-based experience" if (1) they had some work or training experience during high school, (2) they were able to draw on their most recent worksite experience in a classroom assignment, and (3) their performance in this worksite experience counted toward a school grade.[15] The fraction of students whose most recent work experience

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[14]The partnership survey shows increases in the availability of community service, and six percent of districts introduced community service requirements between 1994 and 1997. The student survey, however, shows a decline from 1996 to 1998 in the number of students reporting unpaid internships from 53 to 42 percent, and a corresponding increase in reports of "volunteer work."

[15]There is no definition in the STWOA of how workplace activity and the school curriculum (continued...)

satisfied these criteria declined between the surveys of the class of 1996 (16 percent) and the class of 1998 (13 percent).

These findings do not mean that schools are not trying to integrate school- and work-based learning. The intercohort comparisons reflect students' perceptions. Some students may not recall assignments that drew on their work experience, and the measures that are possible through a survey may not capture all the ways that school- and work-based learning activities could complement each other. At a minimum, though, these findings suggest that schools have not yet made marked progress in linking school- and work-based learning in ways students recognize.

3. Workplace Activity Is Constrained by Resources and Competing Academic Objectives

Partnerships must overcome several obstacles as they seek to increase the number and quality of students' work-based learning opportunities. Three major factors are limiting the expansion of workplace activity, particularly its more intensive forms:

- ***Participating employers often incur substantial costs.*** Employer surveys suggest that employers who provide workplace opportunities for students most often do so to achieve a public relations or philanthropic goal. Relatively few indicate that their primary reason is to recruit qualified employees (Bailey et al. 1998).[16] One reason is that

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[15](...continued)
should be linked. Site visits for this evaluation and other field observation suggest, however, that one important criterion is whether students get assignments in school that draw on their worksite experience. Some such assignments, however, might amount to little more than a one-time requirement that students write a description of what they did at the workplace. A more stringent additional criterion is that actual performance at the worksite, monitored by or reported to the school, becomes a factor in students' grades. The combination of these two criteria was chosen to ensure that the link is more than casual.

[16]A large fraction of employers participating in work-based learning programs are not-for-profit or public-sector organizations (Bailey et al. 1998). Among for-profit firms, employers with a history of involvement in community affairs are more likely to participate (Institute for Research on Higher Education 1997). Regardless of a firm's size, employers rarely provide positions to more than two (continued...)

employers often incur large costs but may not realize the direct benefits of students' involvement with their firm. Estimates of employer costs for training and supervising students in high-quality programs run as high as $10,000 per year per student, typically more than the cost of student wages (Silverberg 1996; and Bassi et al. 1997). The direct benefits realized by participating employers are often small or uncertain, because relatively few students retain a position with the same employer after graduation. If students learn valuable skills, most of these benefits are realized by students themselves rather than by participating employers.

- ***Workplace learning requires significant support from school staff.*** Schools also incur substantial costs to develop work-based learning activities. In theory, work-based learning could substitute employer resources (space, equipment, and staff) for school resources. In practice, however, high-quality work-based learning programs require a substantial new time commitment from schools. School staff must recruit and screen employers, match them with appropriate students, help employers define suitable tasks and training, monitor students' progress, and help resolve problems. The logistical burden is substantial in part because most employers provide positions for only one or two students. The resources for enhancing school curriculum, revising school schedules, and maintaining ongoing communications with employers are in short supply in many schools.

- ***Some people perceive tension between workplace activities and academic success.*** Some researchers have suggested that employment contributes to U.S. students' lagging performance on high school math and science proficiency tests (Viadero 1998). Some teachers and parents are wary of work-based learning, concerned that it eats into time for classes and homework, particularly if students leave school early to participate in a work-based activity. Teachers tend to support work-based learning if it clearly gives students chances to apply skills acquired in class or at least see how employers need those skills. It is most often vocational educators who find connections between their curriculum and students' work-based experiences. Work-based learning usually has little apparent connection to the academic curriculum, however. As a result, academic teachers are slow to recognize value in work experience or to make the substantial commitment needed to forge substantive connections.

D. STUDENT INVOLVEMENT IN BROAD RANGE OF STW ACTIVITIES

Neither the STWOA nor most STW proponents call for a fixed set of activities for all students. The emphasis in the legislation, and in most partnerships' approach to implementation, is to create

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[16](...continued)
or three students (perhaps because this level of participation is feasible without significant structural changes but still meets even large employers' community relations goals).

a variety of career development, school-based, and work-based learning opportunities that different students will find useful in different forms and combinations. How these particular opportunities become available and the extent of students' participation in each type have been described in earlier sections of this chapter.

The STW legislation, however, aimed to do more than just give students an isolated experience such as a job shadow, an internship, or a particular class. In the long run, one measure of whether a STW system is really emerging will be whether a large and diverse population of students is able to engage in a *connected* set of activities of the sort promoted by Congress: career development, some form of career-focused experience in school that integrates academic and technical learning, and a workplace experience that reinforces school-based learning. Evaluation data can be used to assess, over time, whether opportunities for such connected activities are becoming more available and whether more students participate.

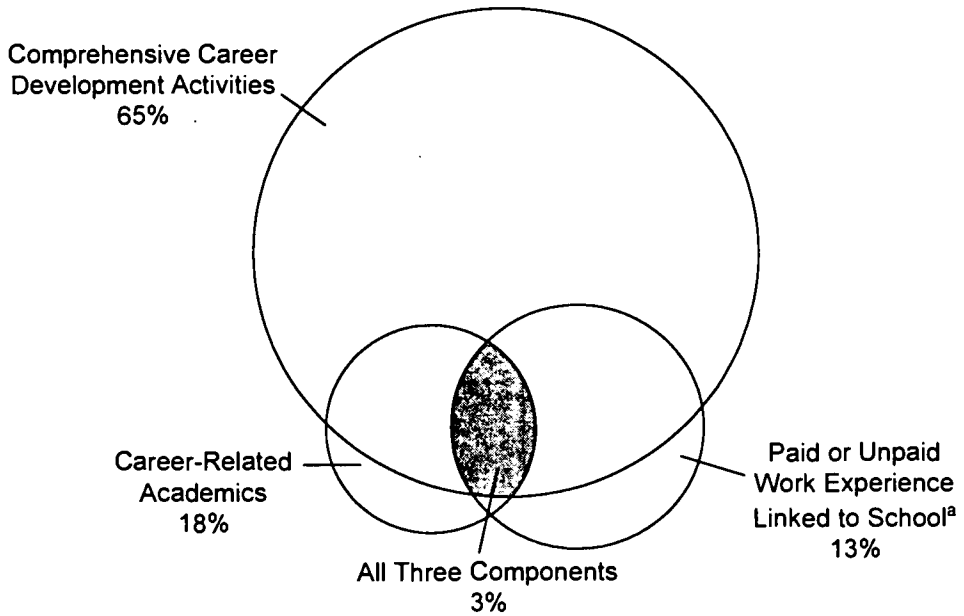
In theory, such connected experiences could come about in two ways. Schools could develop a diverse set of opportunities for students, without creating structured programs that tie them together. They could then rely on effective counseling, decision making by students and their parents, and communication among the leaders of particular initiatives to guide students into a coherent combination and sequence of activities. Alternatively, partnerships and schools could develop more structured programs that package a set of related activities in school and at workplaces for students interested in particular broad career areas.

The more structured approach to giving students a connected set of STW activities can be found in many communities, but for relatively few students. The partnership survey indicates that about 25 percent of member high schools offer a career major program that includes some academic classes for students with similar career interests and an intensive workplace activity (such as an

internship, paid job, or unpaid work experience) linked to classroom studies. However, case study site visits suggest that these programs are usually implemented on a small scale and only for selected career areas. For example, a school may run a "Health Careers Academy" that includes specially selected or developed classes and experience in local hospitals for a few dozen participants, but no comparable program for students with other career interests.

Students' perceptions of their high school experiences confirm that participation in a connected set of STW activities that includes the three major components is still uncommon (Figure III.14). Survey responses of 12th graders in the classes of 1996 and 1998 in the eight in-depth study states show that participation in a comprehensive range of career development activities increased slightly, from 63 to 65 percent. Considerably more students in 1998 than in 1996 reported they had taken a

FIGURE III.14
STUDENT INVOLVEMENT IN KEY STW COMPONENTS IN MEMBER HIGH SCHOOLS



SOURCE: STW 12th-grade student survey, spring 1998, Mathematica Policy Research, Inc.

[a] Work experience is linked to school if workplace performance counts toward school grades and there are class assignments that draw on workplace experience.

"career-related academic class"--a class they saw as designed for students with their career interests. where they had classroom assignments related to that career. This rate rose from 12 to 18 percent. However, there was a significant decline in the percentage of students who reported having had a paid or unpaid workplace experience linked to their school program; it fell from 16 to 13 percent. As a result, only three percent of seniors in 1998 (compared to two percent in 1996) could be described as having had, from their own perspective, a combination of the three main elements of a comprehensive STW program.

This finding pertains only to STW implementation progress and offers no evidence about the impacts of the kind of comprehensive structured program that is emphasized in the STWOA language. This evaluation gauges the progress partnerships are making in implementing concepts that the STWOA promotes but is not designed to yield estimates of how effective the STW model is in increasing students' success.

IV. ENGAGING A DIVERSE MIX OF STUDENTS

The emphasis in federal legislation on making STW activities available for all students has generally received a positive reception among STW practitioners. Partnership leaders at in-depth study sites often note two reasons to view their STW initiatives as relevant for all students. First, many educators and employers believe that exposure to careers and workplaces can benefit all students. Second, many are interested in avoiding or overcoming the stigma often attached to career-focused activities such as traditional vocational programs. By attracting a cross-section of students to STW activities, STW leaders hope to enhance the activities' actual and perceived quality and thus broaden the range of students who are prepared for career choices and career success.

Therefore, one aspect of the evaluation has focused on describing the characteristics of students who participate in STW activities. Particular attention has been paid to whether participating students are diverse in areas of potential concern, such as academic performance, gender, and personal background. Three salient findings emerged:

KEY FINDINGS ON THE DIVERSITY OF STUDENTS ENGAGED BY STW

- ***The activities the STWOA promotes engage students with both higher and lower academic performance.*** Students planning to attend college participate at rates similar to those of non-college-bound students. In 1996, college-bound students were even a bit more likely than others to take academic classes they perceived as focused on their career goal, but emphasis on making career planning universal has increased participation of non-college-bound students in this aspect of STW.

- ***Female students are involved at higher rates than male students in career development activities and workplace experiences linked to school.*** Male students in the in-depth study states are defining career goals at increasing rates, but they still lag behind female students in this respect and in participation in other STW activities.

- ***Whether or not they go to college, most youth after high school feel that STW activities in school and at workplaces were helpful in clarifying career goals.*** Female and African American students tend to attach higher value to these activities.

This chapter examines the characteristics of participants in STW activities with regard to three issues specifically emphasized in the STWOA:

- ***Range of Academic Performance.*** The STWOA stressed that STW activities should engage both "low-achieving" and "academically talented" students. Practitioners often emphasize that involving college-bound students demonstrates that STW activities do not limit postsecondary options, but they also want to ensure that efforts to involve high-performing students and meet employers' expectations do not lead to screening that would exclude students with weaker academic achievement.

- ***Overcoming Cultural or Institutional Barriers.*** The STWOA notes that STW activities should be accessible to students with disabilities, students from all racial and ethnic backgrounds, and male or female students interested in programs that have traditionally attracted students of the opposite gender.

- ***Inclusion of Rural and Urban Communities.*** Provisions of the STWOA underscore the interest of Congress in ensuring the availability of career-focused programs and work-based activities in areas where low population densities or depressed local economies might otherwise limit students' options.

This examination of STW participant diversity focuses on the three main STW components discussed in Chapter III, broadly defined and viewed from students' own perspective. The analysis assesses the characteristics of students who participated in (1) a comprehensive set of career development activities; (2) workplace activities linked to school; and (3) academic classes that students see as designed for people with their career goals (referred to here as "career-related academics"), often a key element of career majors. Measures of participation are based on survey responses and include a wide range of activities students recalled from their high school years--whether or not these activities were arranged by partnerships or schools, and regardless of whether the programs were begun before or after passage of the STWOA. This broad assessment is appropriate, since the aim of the STWOA is not to create an entire new set of programs, but to build on programs and activities already available in local communities. Chapter III described

implementation of these activities; this chapter focuses on who participates as STW implementation moves forward.[1]

Findings on the characteristics of STW participants are presented in three sections of this chapter, addressing three broad questions:

- As STW implementation was beginning, in 1996, to what extent did STW activities in the eight in-depth study states engage a diverse mix of students with regard to academic performance, personal background, and geographic location?[2]
- How is the mix of students involved in STW activities changing over time? How, if at all, do 1998 seniors who participated in these eight states differ from participants in the class of 1996?
- How do students in these eight states, in retrospect 18 months after high school graduation, perceive the usefulness of STW activities, and how do these perceptions vary across different groups of students?

Sections A, B, and C explain the key findings pertaining to these three questions. Appendix C presents additional details on subgroup participation patterns.

A. EARLY SIGNS OF PARTICIPANT DIVERSITY: THE CLASS OF 1996

In the early stages of this evaluation, observed patterns of participation primarily reflected school programs and students' decisions that predated the STWOA. Before STW partnerships were

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[1]The evaluation design allows a determination of whether trends in STW participation are consistent with the aims of the federal legislation. However, observed trends cannot be said to be due solely to STW partnerships' efforts, since a variety of other national, regional, and local economic and political factors, as well as other education reform efforts independent of STW implementation, can contribute to these trends.

[2]The detailed analysis of participant characteristics focuses on the first survey cohort because richer data are available now for the class of 1996 cohort than for the class of 1998. For the first cohort, data can be used from the 12th-grade questionnaire, transcripts, and follow-up survey. At this point in the evaluation, only the 12th-grade questionnaire is available for the class of 1998 cohort.

created, schools were already offering career development, vocational, and work experience programs, and many students found their own workplace opportunities and made choices in their studies based on career interests. Although by 1996 some STW partnership initiatives were already under way, the class of 1996 had gone through high school over the previous four years, mostly before these initiatives had a chance to affect their experiences. Therefore, survey data for the class of 1996 in the eight in-depth study states should be interpreted only in small part as an indication of STW implementation and more as a starting point for describing change.

Overall, a diverse mix of students in the class of 1996 was involved in each of the three major STW components, although some differences among subgroups emerged.[3] Of particular note are findings concerning three issues:

- The overall comparability of participation rates in the three major STW activities--career development, work-based experiences linked to school, and career-related academics--among students with high and low levels of academic achievement and levels of preparation for postsecondary education
- Differences in relative rates of participation rates in certain activities across groups defined by ethnicity and gender
- Levels of participation in career-focused academic classes and comprehensive career development activities in rural areas compared to urban and suburban areas

The diversity of students who participate in STW activities is examined in the greatest depth in this section, based on the sample of 1996 seniors in the in-depth study states. Diversity can be examined in the most detail for this cohort because data are available from the 12th-grade survey,

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[3]The 12th-grade student survey provides data on gender, ethnicity, language spoken at home, urbanicity, disability, welfare receipt, household composition, parents' educational attainment, number of high schools attended, suspensions and expulsions from school, and postsecondary education plans. High school transcripts provide data on class rank in 9th and 12th grades, attendance rate, and courses taken. The follow-up survey of the class of 1996 (in fall 1997) provides data on enrollment in two- and four-year postsecondary institutions and other types of training.

high school transcripts, and the follow-up survey. Section B then examines signs of some shifts in participation patterns between the classes of 1996 and 1998. Changes in the mix of participating students can so far be discerned only from the 12th-grade survey; later analyses will explore these shifts further when transcripts and follow-up survey data become available for the later cohort.

1. STW Activities Engaged the College-Bound in the Class of 1996 About as Much as Others

Rates of student participation in STW activities were examined with regard to four indicators of academic performance:

- ***Class Rank Based on Grade Point Average (GPA).*** Students' quartile ranking at the end of 9th grade (before any possible effects of most high school STW activities) and at the end of 12th grade
- ***Attendance Rates.*** Students' quartile ranking on attendance relative to their class, in 9th and 12th grades
- ***Completion of a "College-Prep" Program.*** Whether students completed the equivalent of the "New Basics" curriculum: four years of English, three each of science, math, and social studies, and two of a foreign language. Approximately 40 percent of the 1996 survey sample completed such a curriculum.[4]
- ***Advancement to College.*** Whether students enrolled, by 18 months after high school, in a four-year college, two-year college, or no college program

By most of the measures available from the evaluation survey, students of higher and lower achievement in the class of 1996 were engaged in STW activities at roughly comparable levels (Table IV.1). There were no dramatic differences between participation rates for students who

[4]This definition of a college-prep curriculum was advanced in *The Nation at Risk* (National Commission on Excellence in Education 1983). We also experimented with a more intensive definition, which stipulates completing a math class at or above the level of Algebra 2 and a chemistry or physics course. Although only 27 percent of students met these more stringent criteria, their rates of participation in STW activities were not significantly different from those of other students.

TABLE IV.1

STUDENT PARTICIPATION IN THREE STW COMPONENTS IN THE EIGHT IN-DEPTH STUDY STATES, BY SCHOOL PERFORMANCE AND PROGRAM: CLASS OF 1996

Group	Percent of Students Participating During High School		
	Comprehensive Career Development	Workplace Activity Linked to School	Career-Related Academics
All Students	63.3	16.1	11.7
Ninth-Grade Class Rank			
Top quartile	66.5	17.0	17.2*
Middle two quartiles	62.1	16.2	11.0*
Bottom quartile	65.1	15.9	11.2*
Cumulative High School Class Rank			
Top quartile	63.6	17.0	13.2*
Middle two quartiles	64.6	16.3	13.5*
Bottom quartile	63.1	15.6	9.5*
Ninth-Grade Attendance			
Top quartile	66.8	15.2	15.2
Middle two quartiles	65.2	16.6	13.3
Bottom quartile	62.1	15.8	8.7
Cumulative High School Attendance			
Top quartile	68.4	14.7	17.0*
Middle two quartiles	64.4	17.3	16.7*
Bottom quartile	63.2	14.5	9.4*
Basic College Prep[a]			
Yes	61.4	14.7	11.7
No	65.7	17.4	13.2
Postsecondary Education Outcome			
Four-year college	62.7	14.3*	12.7
Two-year college	64.6	18.7*	9.9
No college	62.9	17.1*	12.0

SOURCE: Transcripts of the class of 1996 and STW survey of 12th graders, spring 1996, Mathematica Policy Research, Inc.

[a]Basic College Prep is four years of English, two years of a foreign language, and three years of math, science, and social studies.

*Differences among the groups is significant at the .05 level, two-tailed test.

completed a college-prep curriculum and those who did not, nor among groups defined by entry to college. Involvement in comprehensive career development activities and workplace activities linked to school was comparable regardless of students' class rank, attendance, or postsecondary activity. Looked at another way, students who participated in STW activities during high school had college enrollment rates that were roughly comparable to the rates of students who did not participate in STW activities.

One difference in participation did emerge among students in the class of 1996, however. Students with higher class rank and attendance were more likely to have taken a career-related academic class--one they saw as designed for people with their career interest, where they had career-related assignments. More than 17 percent of students with ninth-grade GPAs in the top quartile indicated that they had taken such as class in at least one grade of high school, compared to about 11 percent of students with lower GPAs. Among students who reported taking career-related academic courses, those with the highest GPAs were most likely to take career-related courses in science, as opposed to English or math. These students often saw their science courses as related to a career interest in medicine, but their transcripts suggest they were typically not involved in structured health career programs.[5] The higher rate of perceived involvement in academic classes with a career focus was due in part to the fact that students with higher academic achievement were more likely to articulate a career goal (perhaps as much because of motivation and

[5]Among students taking career-related academic classes, nearly 40 percent of those in the top quartile of their class were interested in careers in health or medicine, compared to 13 percent of the other students. As one would expect, the high-achieving students involved in career-related academics took relatively few vocational courses, suggesting that they did not participate in health occupation programs. About 84 percent of these higher-achieving students took both biology and chemistry, compared to less than 50 percent of other students taking a career-related academic class. Many of these classes were probably regular science courses that these students viewed as relevant to their interest in medicine.

parental support as any organized career development activities). Half the top-quartile students said they had selected a career area to plan for during high school, compared to 43 percent of other students.[6]

It is clear that, whatever the reasons, the idea of developing a career goal and using it to shape one's educational program is at least as relevant to and practiced by high-achieving students as any others. Parents of both low- and high-achieving students are often skeptical of efforts to organize programs of study around career goals or themes because they are concerned that this practice means the curriculum will be less rigorous. This concern may be relevant in some circumstances; however, it appears that the most academically successful students were already in 1996 quite attuned to the merits of using career interests as a guide to their studies. Moreover, students who follow this practice go on to college to the same degree as students who do not appear to use career goals to shape their course selection.

2. Females, Particularly Blacks, Are Most Involved in School-Linked Workplace Activity

Comparisons of STW participation rates among students with different personal backgrounds can help partnerships identify social and institutional barriers that may impede access. The student survey allows examination of whether particular demographic groups were under- or overrepresented in STW activities during the early stages of implementation. Several characteristics of students were examined: gender, race, disability, and parents' education level.[7] Two of these characteristics--

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[6]This greater tendency to define a career interest does not seem to result simply from participation in school-based career development activities; students with high grades were no more likely than others to participate in any such activities.

[7]Family welfare receipt was also examined. This variable was statistically associated with participation in career-related academics in the class of 1996 but not in the class of 1998. This finding was not emphasized, however, because welfare receipt is a fairly poor proxy for low-income (continued...)

gender and race--were significantly associated with participation in a particular STW activity (Table IV.2).

Although female and male students had comparable overall employment rates during high school, females were more likely to have a work experience linked to a high school class (where the link is indicated by both a related school assignment and a course grade reflecting students' work). About 19 percent of female students indicated that their most recent work experience was linked to a class in these ways, compared to only 14 percent of male students.

This gender gap was most apparent among African Americans (Table IV.3). Black female students had the highest rate of participation in school-linked work activities (28 percent) of any demographic group. As a result, black students' average rate of participation substantially exceeded that of whites, even though black male and white male students had comparable participation rates.

Four factors appear to contribute to female students' greater participation in work-based activities linked to high school classes:

- ***Greater Use of Co-Op by Female Students.*** Females, particularly black females, were more likely to take part in cooperative education programs (Figure IV.1). Co-op jobs are often substantively connected to a school class and count toward its grade. Female students were more likely than males to have co-op credits on their transcripts.

- ***Female Students More Likely to Accept Unpaid Positions.*** Female students in the classof 1996 more often sacrificed wages to get positions related to their interests and school curriculum. About 47 percent of female students had an unpaid position, compared to 36 percent of males (Table IV.3). Since unpaid positions were more likely than paid positions to be linked to the school curriculum, females' willingness to accept

[7](...continued)
status, since many low-income families do not receive assistance. Less than five percent of the student sample reported that their families received welfare. More information on findings related to students receiving welfare can be found in an earlier evaluation report (Silverberg et al. 1998).

TABLE IV.2

PARTICIPATION IN THREE STW COMPONENTS, BY STUDENT BACKGROUND: CLASS OF 1996

Group	Percent of Students Participating During High School		
	Comprehensive Career Development	Workplace Activity Linked to School	Career-Related Academics
All Students	63.3	16.1	11.7
Gender			
Male	62.1	13.6*	10.7
Female	64.4	18.4*	12.7
Race/Ethnicity			
African American	67.0	22.7*	13.1
Latino	60.6	14.9*	17.2
White/other	63.2	15.2*	11.0
Disability			
Has disability	60.9	19.2	8.7
Has no disability	63.3	15.7	12.1
Parents' Education			
Some postsecondary	63.3	15.8	11.7
No postsecondary	63.3	16.7	11.8

SOURCE: STW survey of 12th graders, spring 1996, Mathematica Policy Research, Inc.

*Differences among the groups is significant at the .05 level, two-tailed test.

TABLE IV.3

STUDENT PARTICIPATION IN PAID AND UNPAID WORK EXPERIENCE ACTIVITIES, BY GENDER AND RACE/ETHNICITY: CLASS OF 1996

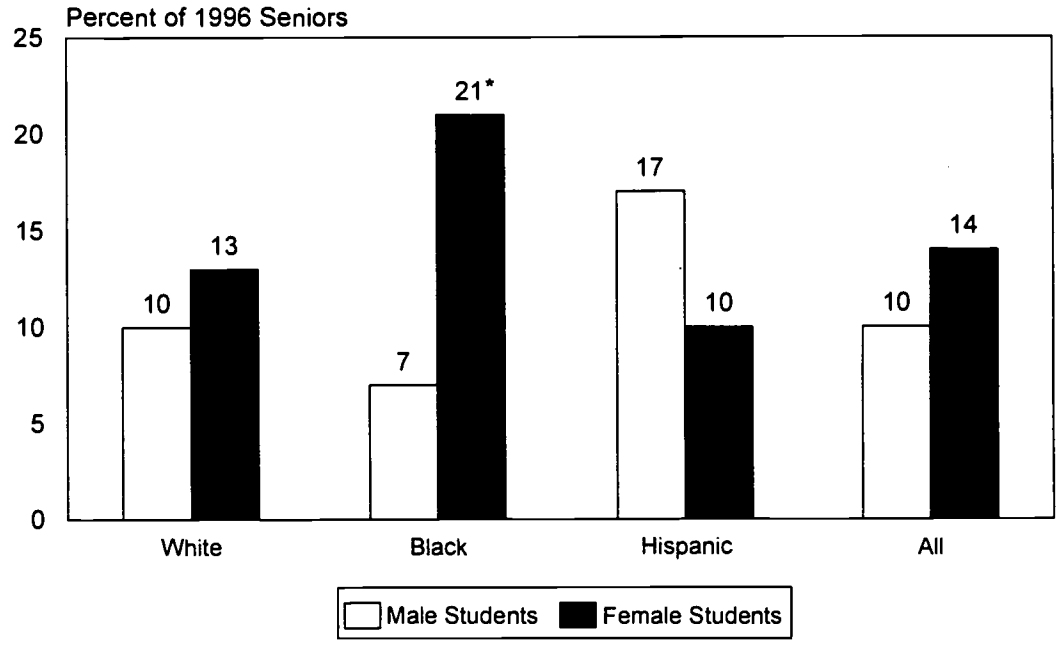
	Percent of Students with Position During High School					
	Paid or Unpaid		Paid		Unpaid	
	Any[a]	Linked	Any	Linked	Any	Linked
All Students	92.8	16.1	87.8	9.2	41.9	8.7
Male	92.5	13.6*	88.9	8.4	36.2*	6.6*
Female	93.1	18.4*	86.8	9.4	47.2*	10.5*
African American	90.5	22.7	84.1	13.2	46.9	12.5
Male	87.5	15.2*	81.2	8.7	40.2	9.0
Female	92.1	28.1*	86.2	16.4	51.7	15.1
Hispanic	85.7	14.9	78.3	7.5	40.6	9.7
Male	89.6	14.6	80.9	5.2	37.7	10.3
Female	82.0	15.7	75.9	9.6	43.2	9.2
White/Other	93.8	15.2	89.3	8.7	41.3	7.9
Male	93.4	13.2*	90.7	8.7	35.4*	5.9*
Female	94.2	17.0*	88.0	8.7	46.8*	9.8*
Sample Size: n = 2,156						

SOURCE: STW survey of 12th graders, spring 1996, Mathematica Policy Research, Inc.

[a]"Any" position includes both positions that are linked and those that are not linked to school.

*Difference between male and female students is significant at the .05 level, two-tailed test.

FIGURE IV.1
PARTICIPATION IN CO-OP JOBS DURING HIGH SCHOOL, BY GENDER AND RACE



SOURCE: Transcripts of the class of 1996. Mathematica Policy Research, Inc.

* Difference between male and female students is significant at the .05 level, two-tailed test.

unpaid positions accounts for a substantial portion of the gender gap in work activities linked to school.[8]

- ***Female Students More Likely to Articulate a Career Goal.*** About 51 percent of female students in the 1996 sample had selected a career area to plan for, compared to 35 percent of male students. Students who selected a career interest were somewhat more likely to have had work experience connected to their school curriculum.

- ***Female Students More Interested in Fields with Tradition of Workplace Activity.*** Female students are more likely to be interested in careers that are a traditional focus of unpaid and co-op work experience linked to a school program. About 38 percent of female students stated an interest in health or education to school staff, compared to 9 percent of males. More males (29 percent) than females (8 percent) selected manufacturing, the building trades, or electronics/computers--areas in which unpaid

[8]This gender gap persists in the class of 1998, although the extent to which unpaid positions are connected to students' school curriculum has declined over time (see Chapter III). Unpaid and paid positions held by the class of 1998 were equally likely to be linked to school.

work and co-op jobs are less common.[9] Interracial differences in expressed career interests may also contribute to the particularly high participation rate of black female students in workplace activities linked to school. Nearly 35 percent of black females expressed an interest in health occupations, compared to 25 percent of white females.

An important question is whether gender differences in work experience and formulation of career goals contribute to the emerging gender gap in educational attainment. Over the past 20 years, the long-standing lead held by males in educational attainment has narrowed and been reversed (National Center for Education Statistics 1997). In 1976, male students were more likely than females to graduate from high school, and male high school graduates were more likely to enroll in college.[10] By 1996, American female students had high school graduation rates (88 percent) slightly higher than males (86.5 percent), and female high school graduates were more likely (66 percent) to have completed at least a year of college than males (63 percent).[11]

The extent to which the gender gap in STW-type experiences contributes to the gender gap in educational attainment is unclear. The fact that more female students formulate a career goal during high school may both reflect and reinforce their desire to complete high school successfully and enroll in an appropriate postsecondary program. Their greater involvement in work experiences--particularly unpaid jobs--connected to career interests and high school studies could mean that these

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[9] National data indicate that nearly 1 out of 6 credits earned in health programs is a co-op credit, compared to only 1 out of 26 credits in trade and industry (Levesque et al. 1995).

[10] In 1976, about 86 percent of males ages 25-29 had graduated from high school, compared to 83.5 percent of females in that age group. Among high school graduates, 58 percent of males had completed at least one year of college, compared to only 46 percent of females.

[11] These national differences are reflected among students in the STW evaluation survey. Female students in the eight in-depth study states were much more likely (76 percent) to report that they had a career goal requiring a four-year college education than were males (65 percent). Moreover, 18 months after high school, males were less likely (32 percent) than females (43 percent) to be enrolled in a four-year college; the same fraction (23 percent) of both males and females were enrolled in a two-year college.

experiences contribute more heavily to perceptions of the value of education for females than for male students.

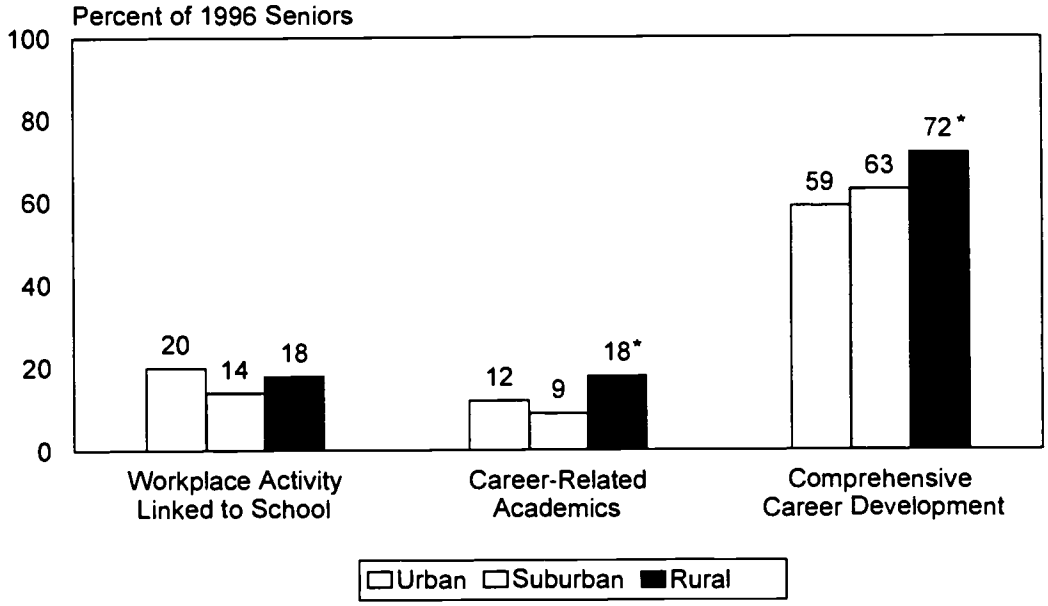
3. Many Rural Students Are in School-Based STW Activities in Early Implementation

The framers of the STWOA recognized that geographic location and economic conditions could heighten the importance of successful STW systems but also pose special implementation challenges. The legislation (1) provided for special grants directly to partnerships in high-poverty urban and rural communities; and (2) required that states receiving implementation grants support STW initiatives that will "over time cover all geographic areas in the state, including urban and rural areas." Concerns about the range of work-based opportunities available for students are particularly pressing for many rural communities and economically stressed urban areas. While unemployment rates are lower for rural youth than for urban youth, the variety of industries in rural areas is often limited, making it potentially harder to find positions related to a wide range of career interests and school programs.[12] Therefore, one question addressed in the evaluation is whether there are any significant differences in rates of participation in STW activities in rural areas, compared to urban and suburban areas.

The student survey data for the class of 1996 suggest that some aspects of STW activity as seen from the student perspective were actually somewhat more common for that baseline cohort in rural areas than other areas. For example, the rate of student participation in a variety of career development activities was higher in rural schools than in other schools (Figure IV.2). Underlying this difference were more pronounced differences in rates of participation in two specific career

[12]Youth unemployment rates have historically been highest in low-income urban communities, reaching 22 percent in 1996 for cities nationwide, compared to about 15 percent in both suburban and rural areas (Current Population Survey 1996).

FIGURE IV.2
STUDENT PARTICIPATION IN KEY COMPONENTS DURING HIGH SCHOOL, BY URBANICITY



SOURCE: STW 12th grade survey, spring 1996, Mathematica Policy Research, Inc.

* Difference among urban, suburban, and rural students is statistically significant at the .05 level, two-tailed test

development activities designed to help students develop their career goals: (1) career interest inventories, and (2) worksite visits.[13] Rural partnership leaders at in-depth study sites noted that worksite tours are appealing substitutes for individual work experience, because the logistics of transportation (which are particularly difficult and expensive in rural areas) are easier to manage when groups visit worksites than when individual students must get to dispersed worksites.[14]

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[13]Although not shown in Figure IV.2, there were particularly pronounced differences in the use of worksite visits in different communities. The fraction of students participating in worksite visits was 50, 58, and 67 percent in urban, suburban, and rural schools, respectively. There were less substantial differences in use of job shadowing, which engaged 24, 22, and 31 percent of students, respectively.

[14]For similar reasons, school-based enterprises are relatively well developed in rural areas. More than 33 percent of rural students participated in school-based enterprises, compared to 24 percent in urban schools and 23 percent in suburban schools.

Rural students in the class of 1996 in the eight in-depth study states were also more likely to develop some career focus in their high school studies. More than 54 percent of rural students indicated they had selected a career area to plan for, compared to 41 percent of suburban students and 39 percent of urban students. About 18 percent of rural students took career-focused academic classes, compared to only 12 percent in urban areas and 10 percent in suburban areas.

Given the obstacles that many rural partnerships acknowledge facing STW implementation, this finding may seem counter-intuitive, but site visit observations suggest that the explanation may lie in differences between the labor markets, local career options, and perceptions of the educational system in rural areas compared to urban or suburban areas. Urban and suburban partnerships seemed as of 1996 to have more difficulty than those in rural areas overcoming parents' and teachers' concerns that career-focused programs of study and work-based learning might lead students to be "tracked" into second-rate vocational and academic classes. Vocational programs and courses in rural schools, particularly in heavily agricultural areas, appear to be perceived as a much more natural ingredient in career preparation for a wide range of students, and parents may be less likely to shun them for their children. Moreover, even if a rural school arranges only one or two academic classes that are obviously related to a career direction--such as agricultural ecology--those few options sometimes attract a relatively high percentage of students where the related career field is one of the major local options students see for themselves.

B. CHANGES IN THE MIX OF STUDENTS INVOLVED IN STW

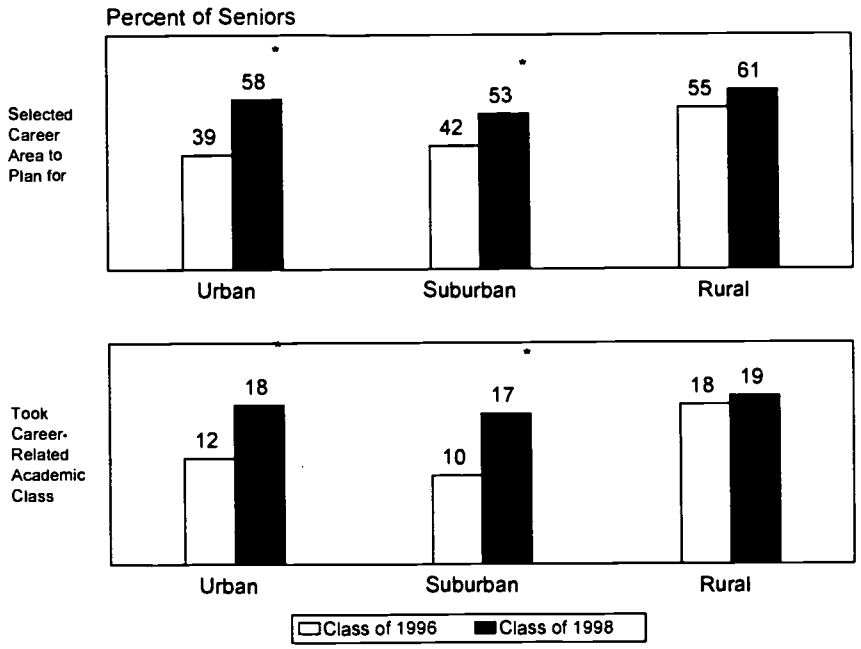
While a broad cross-section of students from the class of 1996 was involved in STW activities, the experiences of those students were typically not the result of special partnership or school efforts supported by STWOA funding. Most of these activities were part of preexisting school programs or opportunities students sought out themselves. Changes in participation patterns since 1996 are

thus a better barometer of how the efforts of STW partnerships affect the mix of students involved in STW activities.

The mix of students participating in STW activities does appear to be changing, although there is limited information available so far for analyzing trends. The ability to identify and confirm these changes is somewhat restricted because transcript and follow-up survey data for the class of 1998 cohort in the eight study states are not yet available. Nonetheless, a number of noteworthy trends emerge from comparison of the first and second cohorts' responses to the 12th-grade questionnaire.

Schools are both expanding and changing the mix of students who define a career focus in high school. In only two years, there has been substantial growth in the fraction of students selecting a career area "to plan for," rising from 43 to 56 percent between the class of 1996 and 1998) (see Figure III.4). This growth in the number of students articulating a career interest has contributed to the rise in the fraction of students who take an academic class in which they had assignments related to their career goals (from 12 to 18 percent between 1996 and 1998). The expansion of these activities has been accompanied by a shift in the mix of students involved in them. The class of 1996--our baseline cohort--students in rural schools and those with relatively high grades and attendance engaged in these activities at somewhat higher rates than other students. However, urban and suburban students were responsible for most of the recent growth in these two activities, effectively equalizing the participation rates across urban, suburban, and rural schools (Figure IV.3). In addition, three specific groups of students showed increasing rates of career focus in their studies: (1) non-college- bound students, (2) African Americans, and (3) male students. Although these three

FIGURE IV.3
GROWTH IN SELECTION OF CAREER AREA AND INVOLVEMENT IN CAREER-RELATED ACADEMICS, BY URBANICITY



SOURCE: STW 12th-grade survey, spring 1996 and spring 1998, Mathematica Policy Research, Inc.

** Difference between class of 1996 and class of 1998 is significant at .05 level, two-tailed test.

trends are related, none can be entirely explained by the others, and hence each is worth examining separately.[15]

1. Career Focus in Academics Growing Among Non-College-Bound Students

While activities designed to help students define a career focus in their studies are usually aimed at a large and diverse population, the students most affected by these efforts are often a narrower group. In general, activities such as career interest assessments and job shadowing are increasingly

[15]Only a small portion of the growth in the fraction of blacks who take career-related academics can be attributed to the growth in this activity among non-college-bound and urban students. Similarly, less than half of the growth in these activities among non-college- bound students is attributable to the shifts in participation by gender, race/ethnicity, and urbanicity.

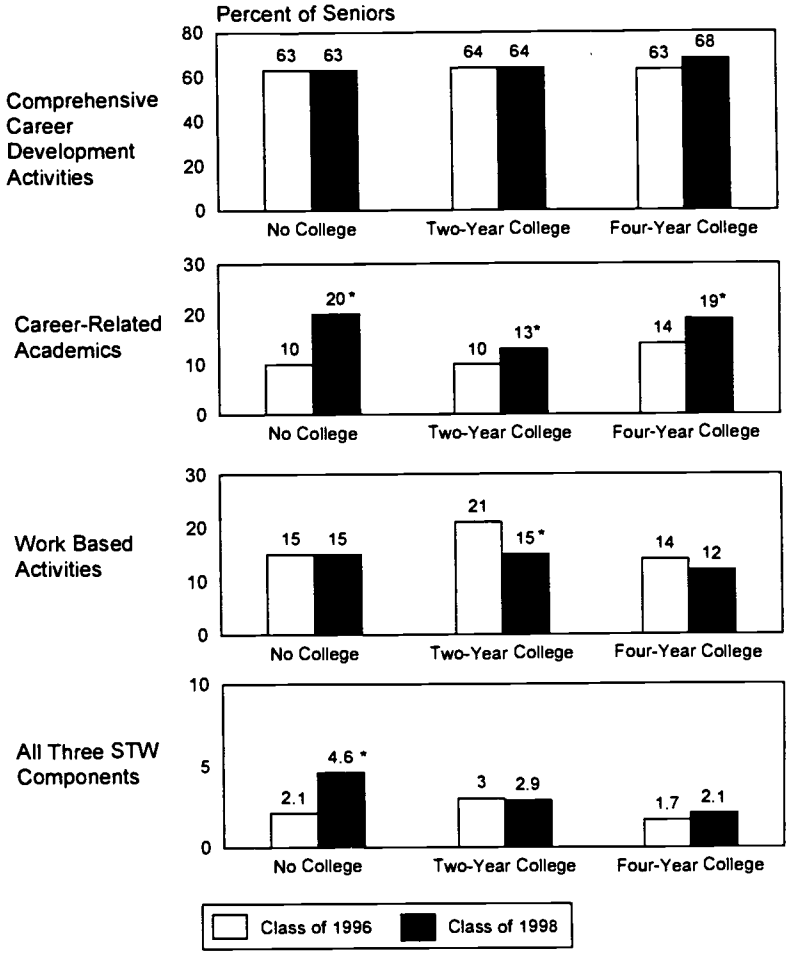
implemented on a large scale and involve most students. Many schools have also recently introduced universal career planning activities (see earlier Figure III.4), in which all students are asked to try to identify one or more career interests and begin to plan how to prepare for these careers. However, the extent to which these activities actually increase the likelihood of a student formulating and acting on a career goal can hinge on a number of student-specific factors. Students who view schools' career development activities as boring or irrelevant may refuse to participate. These activities may not substantially affect some of those who (with help from friends or family) have already defined a fairly precise career goal.

Although 1996 seniors with stronger academic records and higher educational aspirations participated more in what they saw as career-related academic classes than other students, two years later this difference was no longer evident. Participation in career-related academics has grown most among students who had not made specific plans for two- or four-year college by spring of their senior year in high school (Figure IV.4). Among students who planned to enter education programs of less than two years or had no educational plans at all, participation in academic classes that focused on their career goals doubled from 10 percent in the class of 1996 to 20 percent for the class of 1998. This rate of growth was substantially and significantly greater than the corresponding growth among students with college plans, essentially eliminating the gap between the two groups of students.

The increase in non-college-bound students' participation in career-related academic classes is related to two factors, the first of which appears to be the most important:

- ***Emphasis on career planning is new most of all for the non-college-bound.*** School counselors traditionally have emphasized planning for the future most of all for students who plan to go to college. Counselors, and probably their own families, have encouraged these students to think about career interests as one ingredient in choosing an educational path and a particular college to attend. Now counselors and others are

FIGURE IV.4
CHANGE IN STW ACTIVITY PARTICIPATION RATES, BY STUDENTS' POSTSECONDARY PLANS



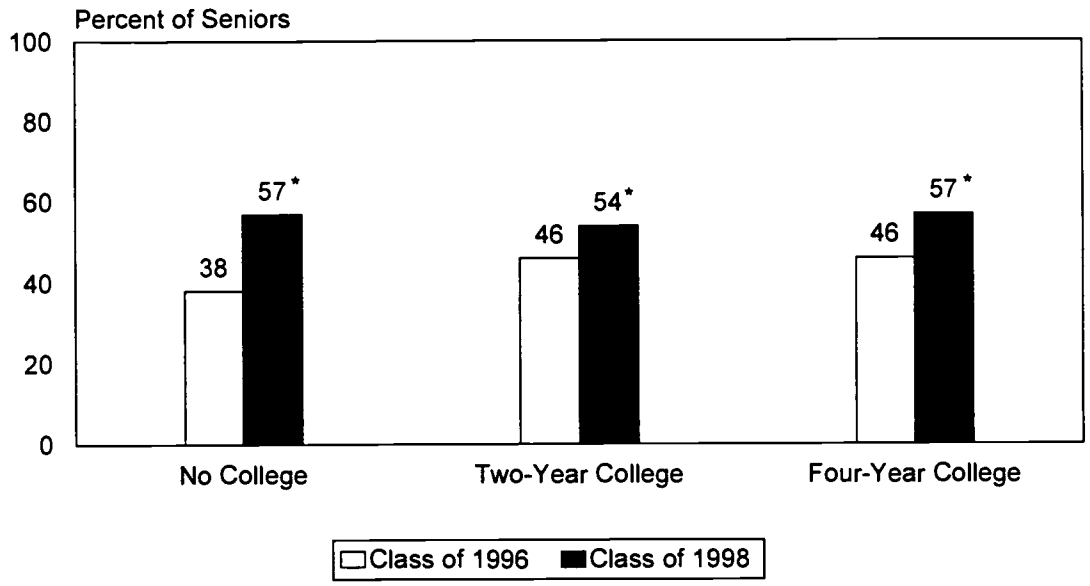
SOURCE: STW 12th grade survey, spring 1996 and spring 1998, Mathematica Policy Research, Inc.

* Difference between class of 1996 and class of 1998 is significant at .05 level, two-tailed test.

increasingly asking all students to think about career goals in choosing high school courses and making postsecondary plans. In the class of 1996, students with no college plans were less likely than others to report they had "selected a career to plan for" (Figure IV.5). New career planning activities appear to have eliminated this gap for the class of 1998. Now that they are more frequently identifying a career goal, non-college-bound students are in a better position to select academic courses based on such goals or at least to see some academic classes as particularly relevant to them.

- ***New structured programs are sometimes designed especially for non-college-bound students.*** While there has been relatively little growth in structured programs combining all three STW components, the growth in participation that has occurred has been largely confined to students who do not plan to attend college (bottom panel of Figure IV.4). Case study site visits confirm that most new programs that integrate vocational and academic instruction around a career focus usually attract students who are less likely to be contemplating extended postsecondary education.

FIGURE IV.5
GROWTH IN SELECTION OF CAREER AREA, BY STUDENTS' POSTSECONDARY PLANS



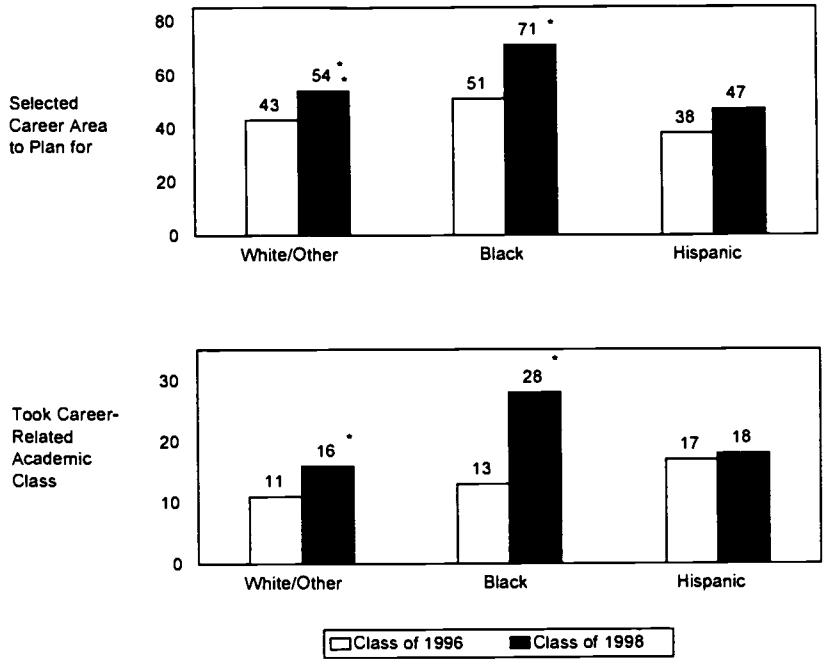
SOURCE: STW 12th grade survey, spring 1996 and spring 1998, Mathematica Policy Research, Inc.

* Difference between class of 1996 and class of 1998 is significant at .05 level, two-tailed test.

2. Schools with Large Black Populations Are Expanding Career-Related Academics

The rate of participation in academic classes that students perceive as focused on their career interests has been increasing most dramatically among African American students (Figure IV.6). The fraction of black students reporting that they took an academic course relating to their career interests grew from 13 percent in the class of 1996 to 28 percent in the class of 1998. Growth among white and Hispanic students was significantly smaller. Both male and female black students have substantially increased their participation in career-related academics (by 18 and 12 percentage points, respectively). As a result, the fraction of black students in the class of 1998 who participated in career-related academics significantly exceeded that of their white and Hispanic peers.

FIGURE IV.6
GROWTH IN SELECTION OF CAREER AREA AND INVOLVEMENT IN CAREER-RELATED ACADEMICS, BY RACE



SOURCE: STW 12th grade survey, spring 1996 and spring 1998, Mathematica Policy Research, Inc.

* Difference between class of 1996 and class of 1998 is significant at the .05 level, two-tailed test.

Several possible reasons for the growth of black students' participation in career-related academics were explored, focusing in particular on two likely explanations: (1) black students' concentration in urban districts, and (2) their lower likelihood of developing plans to attend college. A majority of black students in our sample (54 percent) are concentrated in urban areas, and nearly all of the rest (35 percent) are in suburban communities; relatively few (11 percent) live in rural areas. The student survey shows that participation in career-related academics has expanded more quickly in urban and suburban schools than in rural schools (Figure IV.3). In addition, a somewhat smaller fraction of black students (about 64 percent) had developed plans to attend a two- or four-

year college than was true for white students (about 73 percent).[16] As noted in the previous sections, involvement in career-related academics has grown most among students who had no plans for attending college.[17]

However, such differences in background characteristics account for little of the difference in growth rates in black and white students' participation in career-related academics. Multivariate analyses indicate that neither black students' greater concentration in urban schools nor their lower rates of planning for college account for much of the growth in their involvement in career-related academics. Moreover, none of the other observed differences in the background characteristics of black and white students could account for much of the difference between the two groups' participation in this STW activity.[18]

Instead, the large growth in black students' participation in career-related academics appears to be due mostly to the expansion of these activities on a schoolwide basis in areas where black students are a higher fraction of the student population. In our representative sample of partnerships, most black students are enrolled in urban and suburban schools, where the most rapid growth in career-related academics is occurring. It is in these schools, where black students are more concentrated, that overall participation in what students perceive as career-related academics is expanding. Within these schools, on average, there is only a fairly small difference between the participation rates of black and white students in career-related academics. In the average school

---

[16]However, this difference in the fraction of white and black students with college plans was not statistically significant.

[17]By contrast, 21 percent of the white students in the sample attend rural schools.

[18]By using these multivariate models, some other possible explanations for the relatively large increase in black students' participation in career-related academics could be eliminated. For example, it was confirmed that it was not due to differences in the fraction of students who are female, have physical or mental disabilities, or are in families receiving welfare.

containing both black and white sample members, there was only a three percentage point difference between the participation rates of white and black students in career-related academic courses.[19]

The rapid growth in career-related academic classes in these schools appears to be associated to some extent with the introduction or expansion of career-focused magnet programs (sometimes as part of school desegregation efforts), but some of these may be short-lived. In the evaluation sample of 69 schools, for example, the school where participation in career-related academics increased most was one with a very large African American majority that had in recent years introduced a career-focused magnet program to facilitate integration. However, this school may soon eliminate its magnet programs, as a result of a district decision to re-create community schools serving students in nearby neighborhoods (Hendrie 1998). Neighborhood schools may have important advantages; however, they typically have more difficulty organizing academic curricula around students' career interests since those interests are so much more diverse than those of students who consciously choose career-focused magnet programs. Hence, continued growth of black students' participation in career-focused curricula is uncertain.

3. Gender Gap Is Closing in Basic Career Planning, but Not in Deeper Career Exposure

Schools' increasing emphasis on basic career and educational planning for all students is beginning to close the earlier gap between male and female students' attention to career plans (Figure IV.7). Among 1996 seniors in the eight in-depth study states, only 35 percent of male

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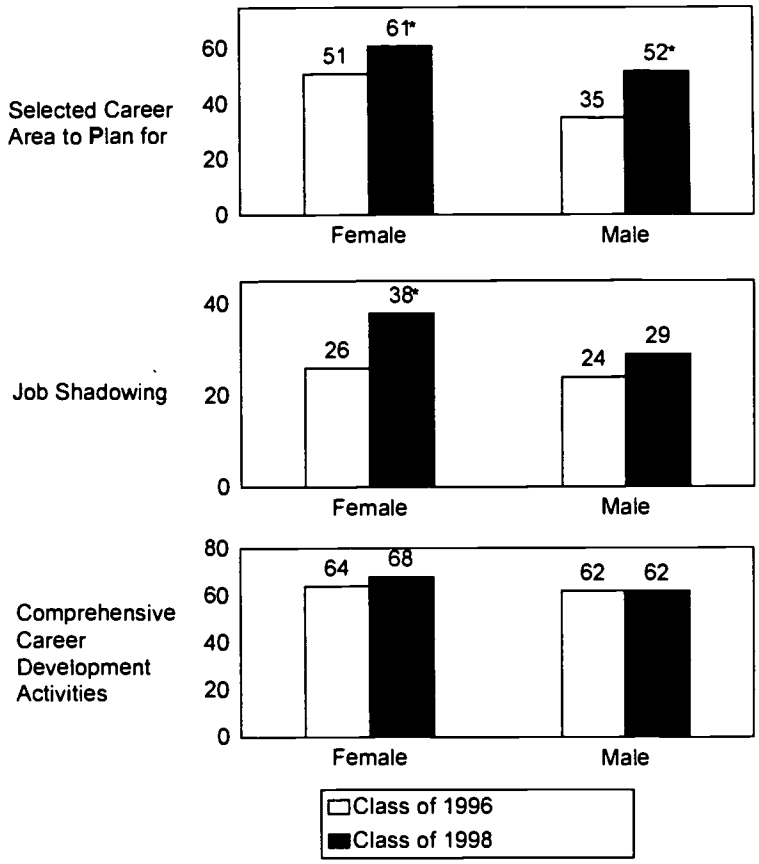
[19]There were 37 such schools in our sample. The results of the multivariate analysis confirmed that school-specific factors were responsible for most of the difference in the rate of expansion of career-related academics among blacks and whites. Black students' participation rate in career-related academics grew by 15 percentage points: from 13 percent of black students in the class of 1996 to 28 percent of black students in the class of 1998. By contrast, white students' participation rate grew by only 5 percentage points (from 11 to 16 percent). Hence there was a 10 percentage point difference (15 minus 5) in the two groups' participation growth rates. Approximately 6 percentage points of this 10 percentage point difference are attributable to the above-average growth of career academics overall in the schools in which blacks are concentrated.

FIGURE IV.7
CHANGE IN SELECTED STW PARTICIPATION RATES, BY GENDER



SOURCE: STW 12th grade survey, spring 1996 and spring 1998, Mathematica Policy Research, Inc.

* Difference between class of 1996 and class of 1998 is significant at .05 level, two-tailed test.

students said they had participated in a school-based process in which they were asked to identify a career area for which they would plan, compared to 51 percent of female students.[20] Two years later in the same sample of schools, the fraction of male seniors who had articulated a career goal to school staff had risen to 52 percent--an increase of 17 percentage points. Female students also

[20]Among those selecting a career area, however, male students in the class of 1996 were somewhat more likely than female students to report taking academic courses related to their goal. This is why the overall fraction of female students taking career-related academics was only slightly largely than that of males (Table IV.2).

increased their rate of identifying a career goal, but by significantly less (10 percentage points), so the gender gap was reduced.

While the gender gap in basic activities related to career choices is narrowing, the difference is growing between males' and females' participation in other activities that provide career exposure and can help students with the choices they face in the future. For example, the growth of job shadowing among male students in the eight states was significantly smaller than among female students (Figure IV.7). Female and male seniors in 1996 were about equally likely to have participated in a comprehensive set of career development activities, but in 1998 females reported these varied activities at a significantly higher rate than males.

C. DIVERSITY OF STUDENTS WHO VALUE STW ACTIVITIES

Examining the value that various groups of students attach to STW activities can help partnerships weigh their priorities for further implementation efforts. Data on students' views must be used with caution, however. Their judgments are not evidence about the impacts of STW activities on their success. Moreover, only those students who participate in each particular activity can provide perceptions of it; since they are to a large extent a self-selected group, they offer no information on how appreciated or effective the same activities would be among students who currently do not participate. However, the characteristics of the students who value particular STW activities are one more source of information on the range and diversity of students for whom these activities at least appear relevant as they move toward a career path.

The analysis therefore addressed three specific issues relating to perceptions of STW activities, using data from the postsecondary follow-up survey of the class of 1996, about 18 months after high school graduation:

- The STW activities students perceived as most helpful in clarifying their career goals[21]
- The extent to which perceptions of specific STW activities differed among students who went to college and those who did not
- The characteristics of students who attach the highest value to STW activities

1. Workplace Activity and Career-Related Academics Valued Most for Clarifying Goals

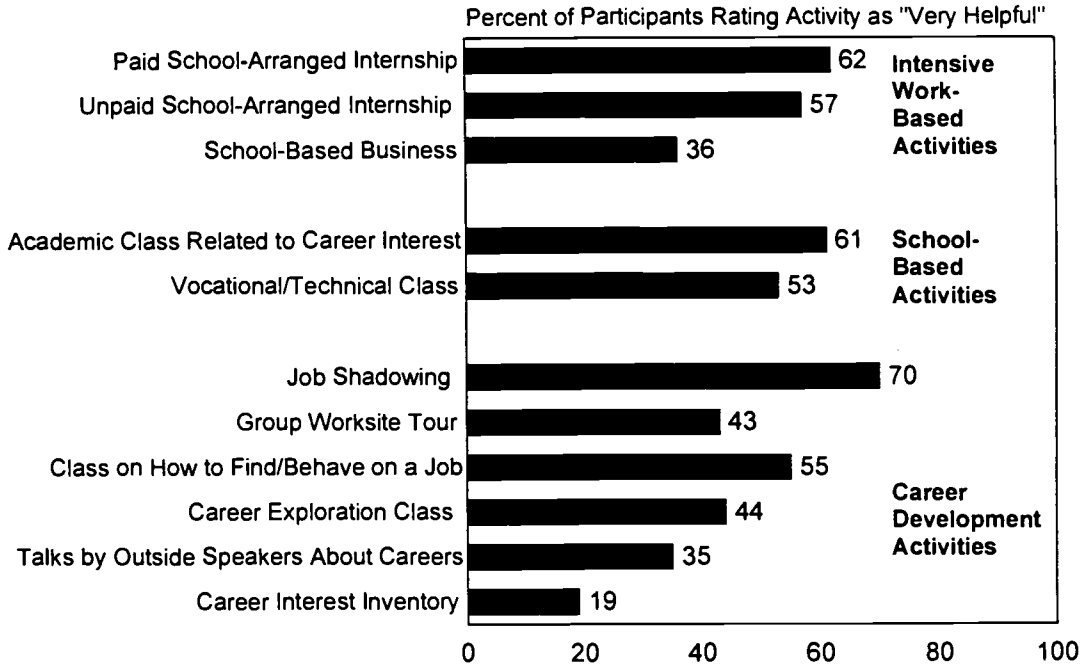
STW activities can potentially help students clarify career goals in several ways. Some activities may confirm a tentative interest. Others may lead students to reconsider a tentatively or even firmly held goal or assumption about their future. Students' perceptions, voiced in the follow-up survey, distinguish clearly between activities that most participants found useful in refining their goals and other activities that relatively few found useful. Two generalizations can be drawn from their responses.

First, the most highly valued work-based learning activities were those that involved an experience tailored to the individual student (Figure IV.8).[22] Students gave high marks to job shadowing, as well as to paid jobs and unpaid internships obtained through school. However, two other work-based activities--group worksite tours and school-based enterprises--were viewed as less helpful in clarifying career goals. These findings suggest that students may need one-on-one contact with an adult employee (rarely provided by worksite tours and school-based enterprises) to get a sense of the kinds of jobs available within an industry and clarify their goals. The more

[21]For each STW activity in which students had participated during high school, they were asked to indicate whether it was "very helpful," "somewhat helpful," or "not helpful at all" in "figuring out what you want to do or don't want to do in a career."

[22]Findings on students' ratings of the value of STW activities should not be interpreted as indicating which activities they favor over others. Each type of activity engages students at different rates, and only those who participate rate each activity. If few students participate in an activity but rate it highly, that does not necessarily imply that it deserves more emphasis from partnerships than another activity that involves far more students who give it more moderate praise.

FIGURE IV.8
PERCEIVED VALUE OF STW ACTIVITIES IN CLARIFYING CAREER GOALS OF CLASS OF 1996



SOURCE: STW postsecondary follow-up survey, fall 1997, Mathematica Policy Research, Inc.

individualized experiences may also press students to engage themselves more fully, since these activities typically require some planning on the part of the student and some sort of postactivity report on the experience.

Second, when students took an academic class that they felt focused on their career interests, they tended to rate it as very useful. More than three out of five students participating in at least one career-related English, math, or science class said these classes were very helpful in clarifying their goals. These classes may have helped students confirm their interest in a particular career, or simply in an academic subject (for example, biology) that they recognized as critical to their career of interest (for example, medicine).

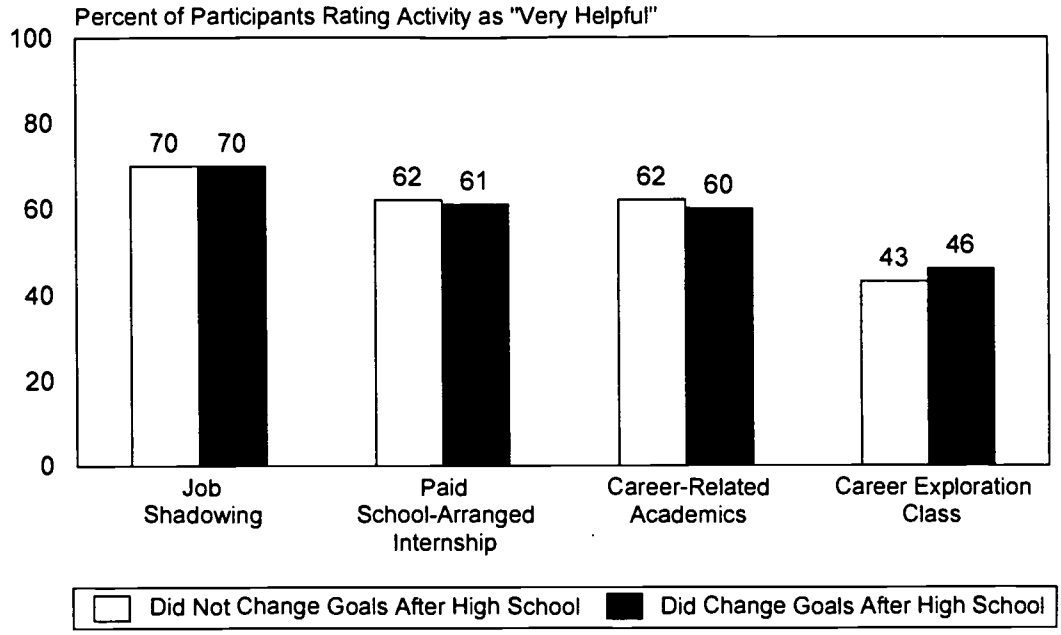
2. STW Activities Valued Even by Students Who Change Goals and Attend College

STW activities could help students confirm and sharpen their career goals and minimize the detours they take on the way to entering a career. The value of such an effect might be most appreciated among students who face the shortest path between their high school experiences and entry to a career--those students who begin employment right after high school, rather than going on to college. There is certainly reason to question whether STW activities can help students refine their career goals, since young people's ideas about their futures are often volatile. In the evaluation sample, for example, 38 percent said that they had changed their career goals in the 18 months after high school. Going to college might also be expected to make STW activities irrelevant, since college often brings new experiences that lead students to question old goals and discover new possibilities. Students in the evaluation sample who went to a four-year college were somewhat more likely to change their career goals (41 percent, compared to 36 percent of other students).

However, whether students retained or changed their earlier career goals does not appear to affect the usefulness of STW activities in high school. The fraction of students who, in hindsight, reported that STW activities were very helpful in clarifying their career goals was nearly the same for students whose goals had changed and for those whose goals stayed the same after high school (Figure IV.9). These findings underscore the complexity of the process by which students' goals are defined and reinforce the view many STW leaders hold: that experiences can be helpful in clarifying career interests even when they do not increase the continuity in students' goals.

Students also valued STW experiences even when a college education and the additional options it opens up was the next stage in the path to a career. Students in the 1996 survey sample who attended college were no less likely than other students to give high marks to their high school STW experiences. For the STW activities examined, there were no significant differences between the

FIGURE IV.9
PERCEIVED VALUE OF STW ACTIVITIES IN CLARIFYING GOALS, BY WHETHER STUDENTS' GOALS CHANGED
CLASS OF 1996



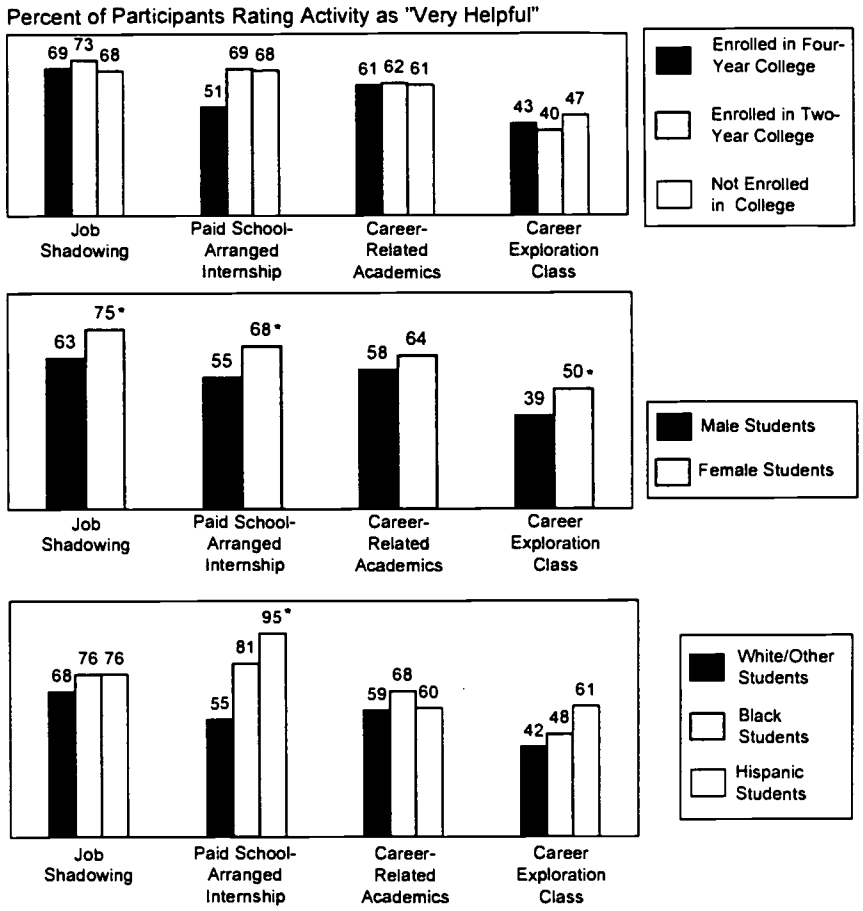
SOURCE: STW postsecondary follow-up survey, fall 1997, Mathematica Policy Research, Inc.

"usefulness" ratings assigned by students who went to college and by those who did not (Figure IV.10).

3. Female Students and Minorities Attach Particularly High Value to STW Activities

In the long term, word-of-mouth information passed from one class of students to the next about experiences in STW activities is likely to affect whether schools can engage a broad cross-section of students in such activities. Therefore, it is important to examine whether assessments of high school STW activities varied across different student groups defined by demographic characteristics and urbanicity. In general, ratings were consistent across student groups, but females and minority students stood out in the value they placed on STW activities.

FIGURE IV.10
PERCEIVED VALUE OF STW ACTIVITIES IN CLARIFYING GOALS, BY STUDENT SUBGROUP IN CLASS OF 1996



SOURCE: STW postsecondary follow-up survey, fall 1997, Mathematica Policy Research, Inc.

* Difference between male and female or among white/other, black, and Hispanic students is significant at .05 level, two-tailed test.

Female students in the 1996 sample of high school seniors appreciated STW activities more than male students did (Figure IV.10). Although statistical significance varied, female students who participated in STW activities were consistently more likely to report that the activity was veryhelpful in clarifying their goals. The activities with the largest gaps between male and female participants' assessments were job shadowing and paid jobs obtained through school.[23]

[23]In addition to the activities shown in Figure IV.10, the survey found that female participants gave high ratings more often than male participants to vocational courses, unpaid jobs obtained (continued...)

Black and Hispanic students were more likely than whites to attach a high value to STW activities. These differences were most apparent in students' assessments of the jobs they obtained through school: 81 and 95 percent of black and Hispanic students, respectively, indicated that these jobs were very helpful in clarifying their goals, compared to only 55 percent of whites (Figure IV.10). Minority students were also significantly more likely to rate vocational classes as very helpful; 61 percent of black and 63 percent of Hispanic vocational class takers did so, compared to only 50 percent of white participants (not shown).

These differences in how participants from different groups valued STW activities may, through word-of-mouth within each group, contribute to differences in their participation rates. As discussed earlier, female students are somewhat more likely than males to participate in both brief work-based activities (such as job shadowing) and more intensive jobs and internships. The greater value female students attached to these activities may contribute to the continuing gender gap in participation rates. Similarly, the relatively high value black students assign to career-focused academic classes may partially account for the relatively high and growing rate of participation among black students in this activity.

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[23](...continued)
through school, and school-based enterprises. These differences, however, were not statistically significant on the basis of the available sample sizes.

V. CONCLUSIONS AND IMPLICATIONS FOR THE FUTURE

The STWOA is an ambitious effort to improve the way we prepare youth to be productive adults. It outlined a strategy with three priorities. STW partnerships and their individual members are to increase students' involvement in *exploring* careers: identifying their interests and talents, becoming aware of careers they might pursue, refining their interests and formulating goals, and clarifying what they need to do to prepare for a career. The STWOA envisioned a *program model* that, with adaptations by states and local partnerships, would become the framework for educating a broad segment of American students. Their studies would be organized around a broad career area, integrating workplace training and school-based learning, and combining academic and technical instruction. The legislation also promoted changes in *institutional relationships*--most important, the way employers and schools work together and with other community members to create related experiences for students in workplaces and in schools.

Congress urged states and local STW partnerships, while pursuing these priorities, to ensure that their efforts advanced, or at least were consistent with, three ancillary objectives. First, career preparation was to be broad-based. Students' exploration and instruction should be based on a broad conception of careers, involving instruction about all aspects of an industry, not just a narrow occupation. The legislation encouraged special efforts to ensure that gender did not restrict the careers students consider and learn about and that diverse career opportunities be open to students with disabilities and other special populations.

A second guiding concern was that STW partnerships should incorporate the highest academic standards. STW programs were clearly not intended to be part of a "lower-track" education with diluted academic content or stigmatized as just more vocational education. On the contrary, some

educators see elements of STW systems as vehicles for raising standards for all students and thus as a strategy for education reform. STW implementation would not only co-exist with efforts to raise academic standards, but be an integral part of them.

Finally, STW implementation was to result in a "system," not ephemeral, unconnected programs. The opportunities STW partnerships created would complement each other, lead students through a sequence of progressively more focused and higher-level activities, and be consistently available throughout a partnership's member schools and a state's districts. Over time, the exploratory activities for all students, the structured programs described in the STWOA for interested students, and the collaboration among schools, employers, and other partners would become ingrained practice. This would be true not only in schools, but also in alternative settings for students who had dropped out or could not succeed in regular schools.

Efforts to create STW systems are still unfolding, but preliminary assessments of progress are possible. Some states have just recently received STW grants; in states funded earlier, some local partnerships have only recently received substate grants. The national evaluation, however, has focused its in-depth study on eight states that received their first STW grants in 1994 and 1995, and the partnership survey has so far been conducted in states that had received their implementation grants by 1996. Most partnerships included in the evaluation have had grants for several years. In fact, many states and local partnerships are nearing the end of federal STW funding. In most cases, the overall direction and priorities of STW implementation, as well as the challenges and limitations to be confronted, have already emerged.

The preceding chapters of this report provided answers to the basic evaluation questions posed in Chapter I. It is also important to go beyond these questions, however, and address specific concerns about STW implementation as it has unfolded so far, and about whether progress to date

can be sustained in the future. In this concluding chapter, six concerns are addressed, drawing on evaluation findings and some interpretation of what these findings might imply for the future:

- What balance is being struck between giving students flexible opportunities to explore and learn about possible careers and creating more structured programs that focus on particular careers?
- Do STW systems as they are actually implemented open up new opportunities for students or narrow their options?
- Is STW implementation contributing to, detracting from, or irrelevant to state and local efforts to raise educational standards?
- What will happen to STW partnerships and their role in furthering implementation efforts when federal funding ceases?
- How critical is it to maintain the kind of collaboration that many STW partnerships have promoted, not only between schools and employers, but across school districts?
- Will STW practices and programs continue beyond STWOA funding, and, if so, which ones will do so?

A. EXPLORATION AND GUIDANCE EMPHASIZED OVER SKILL BUILDING

The history and language of the STWOA suggest its main purpose was to create apprenticeshiplike programs with a focus on particular careers. The programmatic experience envisioned in the legislation would involve students in a "career major" of related academic and vocational classes pertaining to a chosen target career area, a sequence of workplace activities focusing on progressively more advanced skills, and integration of workplace and school-based learning. This experience would be preceded by more exploratory activities, to help students learn about careers and choose a career focus. The reality of STW implementation, however, is that the more exploratory activities are getting more attention and engaging more students.

1. Career Majors Given Less Emphasis than Exploratory Activities and Career Guidance

An indication of the balance between these two aspects of STW is that career majors as defined in the STWOA have been given relatively little prominence in practice. To be sure, about 29 percent of partnership high schools across 34 states report that at least some students choose a career-focused program of study and are grouped with other students who have the same career interest for at least some classes beyond a vocational course. However, relatively few students are involved in such programs of study. The most common examples of such programs are career academies and some Tech-Prep programs. Site visits suggest, however, that most schools that have such structured programs offer them for only one or two careers, and typically no more than several dozen students are involved in each school.

Students' responses in the eight state surveys of high school seniors confirm that the career major experience is not prevalent. Just 18 percent of 1998 seniors said they had ever taken an academic class for students with career goals like theirs and had assignments in class related to that career. Although the proportion of students experiencing such career-related academics has grown (up from 12 percent in 1996), site visits suggest that only a portion of these students are actually involved in a defined career-focused program of study. The rest are likely in individual academic courses they perceive as relevant to their career interests, but that are not part of a broader sequence of related academic or occupational courses. The STWOA anticipated that only "interested" students would choose a career major and offered no specific participation target, but the career major was one of the three key components of the programs it proposed to make available to all students.

STW partnerships and schools have instead placed greater emphasis on "career pathways"--guidance tools used to advise students on which courses they should take in high school, based on their career interests. Most often, partnerships define five or six broad clusters of careers that

encompass most lines of work in today's economy (such as agriculture and natural resources. health and human services, engineering and industrial technology, or business and finance). For each broad career cluster, they develop a "pathway" chart that identifies occupations within it, the courses students ought to take, the postsecondary programs or majors that would help them advance toward a career in this cluster, and sometimes the kinds of workplace activities that might be useful. These guides can help students chart their own path toward a career or create their own informal program of study, but they do not typically involve the student in a comprehensive program of classes and workplace activities specifically organized as a whole to focus on a target career. Educators often prefer this pathway model because they believe students' career interests are too unstable and unspecific to make more structured, focused programs of study a useful option for many students.

2. Exploration of Careers More Common than Training as Purpose of Worksite Activity

Emphasis on exploration, rather than on progressive skill building in specific career areas, is also evident in the way workplace activities are evolving. STW partnerships are more commonly trying to increase the number of students who participate in brief job shadowing experiences than to substantially expand the number who enter the kind of structured job training given more prominence in the STWOA. Student survey data show that students are now commonly involved in a variety of career development activities (including job shadowing and worksite visits) but far less in intensive workplace learning. However, there are exceptions. For example, the Boston partnership's STW model is gradually expanding into every city high school and aims to engage most high school students in a career-focused program that includes an extended workplace component.

The tendency to emphasize career exploration and career pathway guidance over career-focused programs reflects a tension between competing STW objectives. On the one hand, the STWOA

itself and some STW proponents support the idea of highly structured programs with a strong career focus (such as the apprenticeships that inspired the legislation). Some such programs are being developed on a small scale; where partnerships or states highlight them as the "core" of STW implementation, however, they add to the impression that STW is only relevant for the particular technical careers they cover. Since these programs often are enhancements of vocational programs, they appeal to a small number of students who have identified occupational interests; this strategy does little to promote broad support for STW systems.

On the other hand, most STW proponents at the national, state, and even local level now voice the idea that "STW is for all students." This stance requires a broader, more flexible, and less focused conception of STW systems and STW activities. In most places, making STW meaningful for all students has implied focusing on incremental changes in students' experiences, expecting students to identify a broad career interest rather than to choose a career-oriented program, and downplaying schools' emphasis on restructuring educational programs around careers.

B. STW MORE LIKELY TO BROADEN THAN NARROW STUDENTS' OPTIONS

Along with widespread support for STW concepts, there is also a common concern that the changes the STWOA promotes will force students into narrowly defined occupations and reduce their options for career growth and mobility. Some educators and parents express this concern, and, in some states, it focuses on fears that government and employers will choose students' career directions for them. This was clearly not the legislative intent. Moreover, evaluation data suggest that the manner in which STW implementation is being pursued is unlikely to have any such effect. Instead, implementation efforts tend to broaden the career options students are aware of and to encourage them to prepare for a direction of their own choice.

Much of this concern appears to rest on the misconception that STW partnerships are implementing narrowly focused occupational programs and requiring all students to follow one. Fear has been expressed that asking students to explore their career interests, choose a career goal, and then shape their education accordingly will bar them from developing a broad educational foundation and having the option to change their minds later and pursue other career goals.

Visits to STW partnerships conducted for this evaluation suggest that these impressions are inaccurate. The most rigorous standard of evidence might require statistical evidence that students are making career choices at least as diverse and ambitious as they would without STW implementation efforts, and are achieving at least as great success. Such evidence is not available, because partnerships' efforts generally do not target specific students whose paths could be compared to others unaffected by the STW initiative. However, the findings on implementation approaches and priorities presented in earlier chapters of this report highlight several points that should defuse this concern.

STW partnerships are paying most attention to increasing students' overall awareness of career options. Educators often view this priority as important because many youth lack the personal or family resources and connections that would allow them to learn about careers other than those pursued by the people they encounter in daily life or highlighted (and possibly distorted) in the mass media. Although no rigorous measures exist of the effect partnerships' efforts are having on students' knowledge and choices, this major emphasis in STW implementation, if it has any effect, most likely widens, rather than narrows, the options students perceive.

Partnerships' efforts to promote career pathways are more often producing informative guides for students rather than highly structured programs. Career pathway charts generally encompass a wide range of related careers and are designed to span most careers in our economy. Schools use

these guides to try to help students understand that their current interests could lead to a wide range of occupations. If, by using these career pathway materials, students are more likely to recognize the academic and experiential foundations that would be important preparation for a broad set of occupations, they expand their options.[1]

Moreover, pathway guides are dominated by schools' academic graduation requirements, and primarily serve to help students tailor their few elective choices to interests that could relate to future careers. Career pathway guides may distinguish occupations within a broad career cluster that require more or less advanced academic attainment and postsecondary education. A pathway guide for "health and life sciences careers," for example, might clarify that students interested in becoming biotechnical engineers should take the most advanced mathematics they can, while other choices might best serve someone who wants to be an emergency medical technician. There is always a risk that schools (as well as students themselves and their parents) can underestimate a student's potential and guide a student to a less ambitious educational path as a result (in what is commonly labeled "tracking"). However, the evaluation offers no indication that STW implementation efforts and the use of career pathways increase that risk; in fact, most STW leaders at the state and local level are zealously trying to break down traditional tracking practices.

In rare cases, the evaluation did find some local partnerships making plans that could be construed as constraints on choice. One school district, for example, plans to require all students to choose among career pathways, each of which includes as electives one of what is currently a relatively narrow set of existing vocational programs. The eventual intent is to broaden vocational and career offerings and ensure that all students have some such practical instruction combined with

[1]Females and minorities, often cited as groups whose career choices are confined by stereotyping, may benefit in particular, as suggested by their particularly high appreciation of STW activities after graduation in the follow-up survey.

their academic courses around a career direction of their choice. In the short run, however, it would appear that students with potentially diverse interests will face limited options.[2] However, requirements for such constrained choices have so far been observed in the evaluation as plans rather than reality, and it is possible that factors such as parental, student, or teacher resistance, or lack of capacity in vocational courses, will require modifications to such plans.

It is unrealistic to expect that career interests for most students will remain fixed from adolescence. Pathway guides, or even more structured programs organized around careers, do not appear to diminish students' options to change direction, however. Even where entire schools are organized around broad career areas, for example, students must fulfill graduation requirements. Within such a framework, schools can still guide individual students to take the most advanced classes they can handle (which is one key to preserving postsecondary options). Even if students change their career interests later, learning math or writing or science skills in a context that clarifies how they are used in the "real world" can strengthen motivation and success, according to some educators. Where schools have created career academies or apprenticeship programs for selected career areas and only some students participate, those who enroll are still required to fulfill the same academic requirements they would face if they did not choose such a program. In some schools, choosing a particular "career major" does entail taking certain career-focused classes, but these are electives and do not substitute for core academic requirements.

C. HOW STW HELPS RAISE STANDARDS IS STILL UNCLEAR

STW proponents commonly argue that implementing STW systems is a way to raise educational standards for all students. The STWOA called on states and local partnerships to integrate their

[2]This situation is similar to, for example, the circumstances facing students in schools that require them to take a foreign language but offer only French and Spanish.

STW implementation efforts and resulting systems with the systems they develop under the Goals 2000 Educate America Act and the National Skills Standards Act of 1994. This mandate can be interpreted in two ways. One could surmise that the mandate was a response to concern that STW systems would tend to undermine high standards and thus amounted to a caution to take measures to avoid that result. Alternatively, it can be seen as an expression of faith that the student experiences and approaches to education outlined in the STWOA would closely complement and reinforce the broad goal of raising academic and technical skill standards.

1. Implementing STW and Raising Academic Standards Are Occurring Independently

Evidence from the STW evaluation site visits and partnership surveys suggests that states and local school districts are indeed taking steps to raise academic standards. Almost a third of the school districts included in the partnership survey had raised overall academic requirements for graduation between 1994 and 1997, and specific requirements for credits earned in math, science, and other subjects had been increased in many districts. Over those three years, basic proficiency tests required for graduation were added in about 13 percent of the districts.

Some changes promoted by states and individual districts are designed to raise academic standards in ways that are consistent with basic assumptions underlying the STWOA. For example, among the in-depth study states, Florida and Kentucky have developed curriculum frameworks that emphasize not only rigorous content but also the application of skills, which is consistent with the emphasis in the STWOA on applied learning. In Michigan, recently adopted proficiency tests probe students' ability to apply their skills more than did earlier tests (for example, by requiring a written essay). It is generally assumed that curriculum frameworks and proficiency tests can affect what teachers do in the classroom. Indeed, visits to Michigan schools suggest that districts are working

to incorporate the curriculum frameworks, and some are instituting "writing across the curriculum" initiatives to increase the amount of writing their students do in all their classes, not just English.

Although consistency of purpose can be found between STW implementation and efforts to raise academic standards, the two are on largely independent paths. Both are occurring, but articulated strategies to integrate them are hard to find. For example, STW proponents often assert that academic skills--reading, writing, reasoning, mathematics--can be learned effectively in a workplace context. However, it has been difficult in evaluation site visits to identify clear plans for promoting those skills in workplace activities that STW partnerships have arranged.

2. Skill Certificates and Portfolios Are a Minor Factor in STW and Raising Standards

Two approaches to assessing and improving student achievement beside traditional testing are often said to be consistent with the ideas behind the STWOA. The legislation itself encourages adoption of industry-driven skill standards and use of portable skill certificates based on such standards. Some states and local districts are promoting portfolios as a way for students to demonstrate their skills through work products rather than only through more conventional tests. So far, however, neither of these approaches appears to play a substantial part in changing how students' performance is assessed or in efforts to raise the standards they are expected to meet.

Industry-driven skill standards projects are an important factor in a few industries and in some schools, but they are not a prominent element of STW implementation strategies. According to the partnership survey, about one high school in seven awards any kind of industry-specific skill certificate, and fewer than four percent of high school students earn them. In fields such as automotive technology and metalworking, national industry standards are being adopted and contributing to the improvement of vocational programs in some locations; progress in other industries appears slow, however, and a relatively low priority from schools' perspective.

Portfolios are used in some of the schools visited. Some educators consider portfolios to be part of the transformations associated with STW implementation, but they seem to have little to do with raising standards. About 15 percent of high schools in STW partnerships require students to develop a portfolio. Schools often organize this activity through a career awareness class or under the supervision of an English teacher or an adviser. Portfolios are used to encourage students to think of their work as tangible evidence of accomplishment and as a way to display their best work in a professional way. Individual teachers might apply their own standards to the work students do in their classes and consider putting in their portfolios. As a result, portfolios could be useful marketing tools for students seeking jobs, internships, or other workplace opportunities, and they may encourage students to take pride in their work. However, they do not appear to be used in a way that allows systematic application of a performance standard. They are often used somewhat haphazardly, and sometimes contain only a student's resume and interest inventory results.

3. Special Care Is Required to Ensure STW Reinforces Efforts to Raise Standards

The activities STW partnerships promote clearly can be part of a rigorous, high-quality, and high-standard program. Examples from evaluation site visits demonstrate this. One such example is a program for gifted and talented students in Michigan that requires all students to do three semesters of workplace internships in their junior and senior years. The evaluation student surveys show that students with the highest aspirations and strong academic performance are engaged as much as other students in a variety of career development and workplace activities. If anything, they are more likely than other students to choose their high school classes with conscious attention to their career interests.

However, some tension is felt in many schools between the priority that states and districts are placing on raising academic standards and the interests of STW implementation leaders. This

tension is most often expressed by teachers who feel caught between pressures to meet academic accountability standards and to accommodate new STW activities. Academic teachers are challenged increasingly to ensure their students pass state proficiency exams and master higher-level skills. At the same time, STW coordinators and career guidance staff may be working to expand opportunities for students to engage in workplace activities such as site visits, job shadowing, internships, and community service or to learn about careers in school classes. In some cases, such activities can occur only in ways that intrude on academic class time. Even when they are part of special courses, they take up time that students could otherwise devote to elective academic courses. Despite the theory that STW-type activities can contribute to academic attainment, the absence of rigorous evidence applicable to their own schools often leaves frontline staff feeling caught between the pressures of competing priorities.

Moreover, when academic teachers embrace ideas about making learning more applied and contextual, their early efforts sometimes appear to retreat from high standards. Part of the problem is that applied, hands-on learning can carry substantial "overhead" logistics that detract from instructional time. For example, helping students grasp local history by taking them to nearby colonial period sites may be valuable, but such visits and the travel involved may replace class time that could otherwise be devoted to discussion of assigned readings. Making learning more applied, particularly doing so outside the school building, while preserving or raising standards requires careful planning. However, there are examples of success--such as the work observed in one district where the entire science curriculum from elementary through secondary grades is being transformed by incorporation of technology, experimentation, data gathering, and analysis to bring scientific principles alive for students. This kind of transformation requires resources and time; in this

example, a retired master science teacher is engaged as a consultant to work with the district's science departments over a period of years.

It also must be recognized that students often face a trade-off between taking the time to pursue electives with career content and using their elective options to take more advanced traditional academic classes. A student who takes three years of progressively more advanced vocational classes in manufacturing technology or graphics and design, for example, may not have the time to combine those courses with mathematics classes that go beyond graduation requirements. The best choice for each student depends on the quality of the respective classes and the student's goals, as well as on the perception at postsecondary institutions of how these alternatives prepare the student for further studies.

D. FUTURE PROSPECTS FOR STW PARTNERSHIPS VARY WIDELY

The STWOA defined a central role for local partnerships in creating STW systems but was silent on how long they should function. The legislation enumerated the parties expected to be partnership members. It envisioned the partnership as an "entity" with responsibilities for STW programs and as the body that would receive substate STW grants and allocate them to support initiatives undertaken by the partnership as a whole or its members. Congress also identified "connecting activities" that were not assigned to the partnership entity but that often are performed at the partnership level using STW grant funds. Since the STWOA was conceived as providing seed money rather than ongoing funding, it made no provision for how these functions would be performed, if at all, when STW funding ends.

The substate partnerships created under the STWOA vary in the extent to which they have become active entities with leadership and coordination functions. From field observation, it appears that a substantial fraction of local partnerships, operating with their own staff, have become

important factors in building regional consensus of purpose between educators and employers and across school districts, developing consistent approaches to STW implementation, funding pilot initiatives and their replication, and strengthening local capacities for program development. In other instances, however, the local STW partnership plays little apparent role beyond what schools and their local partners initiate and carry out on their own. Such partnerships operate mostly as funding conduits to pass portions of the substate grant to individual schools.

Where partnerships have been playing important substantive roles, the question arises as to whether these entities as they currently exist will survive and function beyond the end of federal STW funding. In some cases, whether the partnership survives will have little effect on regional cooperation. About 34 percent of all partnerships include just a single school district; here, the loss of STW funding may curtail some program support activities, but the concept of regional partnership never has been important. Even the demise of some multidistrict partnerships, if they are serving primarily to channel funding to schools, might have little importance if individual districts and schools can continue their own independently formulated STW-related efforts.

It appears that most STW partnerships as they were created under the authority of the STWOA will lack the resources to serve important regional coordinating and leadership roles once STW funding expires. They are most likely to continue in four circumstances:

- ***Where Partnerships Coincide with Preexisting Collaborations.*** In some states, all STW partnerships were created with the same boundaries and governance structure as Tech-Prep consortia. In other states, local initiatives had the same effect for some partnerships. Some STW partnerships are aligned with intermediate school districts or regional educational service entities. To the extent that these entities still receive other funding for related purposes, they may continue to promote STW implementation, although decreased funding could affect the vigor of their efforts.

- ***Where States Commit Their Own Funding to Existing Partnerships.*** Several in-depth study states are planning some level of funding support for STW partnerships or purposes. However, in several instances, funding is made available for purposes similar

to some aspects of the STWOA, but not necessarily for the partnerships already established. Moreover, it appears that the amount of state funding will be limited compared to what was available under federal funding.

- ***Where States Create Other Programs in Which STW Can Play a Role.*** In Michigan, for example, state funds for the Career Preparation System (CPS) are expected to flow to school districts. This funding requires approval of local workforce development boards and CPS Educational Advisory Groups (EAGs). Some STW partnerships have been transformed either into the EAG or have become subcommittees of the board. In either case, STW leaders can still exercise substantial influence in shaping a regional agenda for allocation of CPS funds.

- ***Where Partnership Members Contribute to Sustain Their Collaborative Efforts.*** In rare cases, local partnerships envision raising funds locally to maintain a regional partnership entity. For example, five Massachusetts partnerships are seeking local funding; one anticipates annually raising $10,000-$20,000 from each of its member districts and several hundred thousand dollars from local businesses and grants.

E. SOME FORM OF REGIONAL COOPERATION IMPORTANT TO STW PROGRESS

Even if STW partnerships spanning multiple districts end when federal funding expires, development of specific STW programs and cooperation between local schools and local employers can potentially continue. Individual districts, schools, and local employers can work together to create internships and job shadowing opportunities. Schools can work within their own district on revising curricula and developing career pathways.[3]

However, partnerships that bring together schools, employers, and others on a regional scale in many states have served purposes that are likely to be important in sustaining the STW implementation progress already made and advancing it further. Multidistrict partnerships have made several contributions to the development of STW systems:

- ***Stimulating Interest Where Necessary.*** In many partnership areas, some districts and schools lead the way in STW implementation efforts, but others lag behind in their level

[3]Some districts, of course, are large enough to constitute regions themselves, in which cooperation among schools may be useful.

of interest, commitment of staff and other resources, and creative approaches. Regional partnerships have created a forum in which leaders interact with less active districts, stimulating their interest and guiding them toward greater involvement.

- ***Providing Professional Development.*** Regional partnerships have been the main organizers and providers so far of professional development related to STW implementation. By creating regional task forces to work out common approaches (for example, to running job shadowing programs or developing career guidance) they also give teachers, counselors, and junior administrators opportunities to take on leadership roles and gain recognition.

- ***Communicating with Employers.*** In many partnerships, growth in the number of employers working with schools has begun in many partnerships to create pressure for regional coordination of communications with employers. Some partnerships have helped make outreach to employers a consistent process and to install matching systems through which schools seek out workplace activity opportunities, thus limiting the number of competing requests employers receive.

In the future, these functions are likely to remain valuable for sustaining and strengthening STW systems, although there may be ways to perform at least some of them without continuation of current STW partnerships. For example, without strong regional or multidistrict partnerships, states could play a more active role in delivering professional development activities at the local or regional level (particularly since technical assistance is already a major role for some state STW offices). In large school districts, greater resources might be committed from general budgets to the kinds of professional development STW funds have supported. In certain communities included in the national evaluation, Tech-Prep consortia or intermediate school districts could take on some of the goals and functions of the STW partnership. Workforce development boards may be able to sustain regional cooperation for STW goals, if they create a special forum devoted to educational issues and allocate resources to promoting regional cooperation among districts and between educators and employers.

Regional cooperation through some collaborative entity is likely to be important both in the short term, to extend system-building efforts, and in the longer term, to sustain some system features.

For example, to the extent that partnerships develop ways of recruiting and communicating with employers and matching students and workplace opportunities that span district lines, continuing these practices is likely to mean long-term collaboration. In effect, partnerships that succeed in building a real STW system are likely themselves to become a vital part of the system, with something important to contribute beyond what their members do on their own.

F. SOME ELEMENTS OF STW WILL CONTINUE BEYOND STWOA FUNDING

Some aspects of the STW implementation agenda are likely to receive sustained attention at the state level and in local schools. For each of the three main activity elements of the STW model--career development, school-based learning, and work-based learning--there are likely to be some ingredients that state and local initiatives will carry forward and others that they will not. The "seed money" supplied by the STWOA is thus likely in the future to yield a harvest, but it may be somewhat uneven when compared to the comprehensive aims of the STWOA.

1. Continued State and Local Support Is Likely for Some Career Development Activities

Among the three main categories of student activity the STWOA promotes, career development experiences are most likely to continue being improved. Even before the STWOA, certain types of career development activity were already embedded in the curriculum of some states and many local districts. The end of STWOA funding is unlikely to derail the interest of state education departments in developing and promoting comprehensive career guidance programs. These programs typically outline age-appropriate activities, such as having students complete career interest inventories and develop educational plans with counselors based on their career interests. Even where states have not developed career development programs, some of the practices these programs advocate are

widespread. Requiring students to take some form of career awareness class is also common. and in some states it is mandated.

Recent work on career development programs is likely to continue in part because there is an existing network of state and local staff responsible for career guidance. Personnel within state education departments who oversee career education are likely to offer continuing advice and support to local districts. Schools have their traditional guidance staff, and some of them are gradually refocusing their attention from dealing primarily with college admissions issues to broader career guidance approaches. In some locations, active professional associations of guidance counselors support this evolution.

However, some aspects of the broad career development component of STW implementation efforts are likely to become less vigorous when STWOA seed money runs out. Career development activities at employer workplaces, such as job shadowing and worksite visits, rely heavily on school- or partnership-level staff to recruit employers, define appropriate worksite activities, match students to worksites, and handle the logistics of scheduling and transportation. Much of this effort has been assigned in STW partnerships to staff whose positions have been made possible by STWOA funding; unless other funding from local, state, or federal sources replaces the STWOA grants, many job shadowing programs are likely to lose momentum. Regular school staff are even less likely to take on the more challenging task of connecting job shadowing experiences to earlier interest exploration and, later, more focused activities.

2. Action on Career-Focused and Integrated Curriculum Is Likely to Be Uneven

The potential value of curriculum changes associated with STW concepts has gained increasing attention in recent years, and STW funding has helped support curriculum reform efforts. STW funds have been used for a variety of professional development activities, including workshops on

applied instruction, internships for teachers at worksites, and technical assistance on how to develop career pathways. STW funds have been used to support curriculum integration efforts such as development of academic interdisciplinary projects and team-teaching endeavors involving academic and vocational instructors. In most partnerships and schools, at least some faculty have a strong interest in drawing on real-world career situations as examples in classroom instruction. Signs also exist that some mainstream textbook publishing has moved toward infusing instructional materials in mathematics, science, and English with more tasks involving active application of skills and with more reference to the relevance of target skills in careers.

Efforts to advance curriculum integration and to promote a career focus in students' school program, however, already face challenges that are likely to grow larger without STW funds and the partnerships they are now supporting. The partnership surveys suggest a gradual increase in the number of schools with structured programs combining academic, vocational, and workplace learning. Field observation, however, indicates such programs are not, even now, a central priority for most partnerships and schools. Schools are more often helping students achieve some career focus in their education by developing guidance manuals and career pathways charts that identify which existing courses are relevant to particular career areas. Both of these efforts have been stimulated by requirements in the STWOA, state expectations passed on to local partnerships, and STWOA funding for professional development. If requirements and funding under the STWOA are no longer in place, enthusiasm for curriculum integration of all forms may wane.

More generally, many parents and educators are still skeptical about the importance and value of integrating applied and technical learning with traditional academic studies. To a large extent, concern over school accountability and higher standards in education is being addressed by an increasing focus on testing students' academic skills and raising academic requirements for

graduation. For teachers, these often compete with the curriculum and instructional changes the STWOA promotes. Even with STW funding supporting curriculum integration, some teachers are reluctant to experiment. Unless other resources replace STW funding, local schools probably will not be able to maintain the internal constituency that so far has worked for these curriculum changes.

3. Efforts to Expand Intensive Workplace Activities Are Likely to Diminish

Intensive work-based learning activities, although emphasized in the STWOA, have not yet shown substantial growth. Partnerships have generally favored expansion of less intensive workplace activities like job shadowing and worksite visits. Lack of growth in the more intensive activities, like internships, training, and apprenticeships, can be attributed to a variety of factors detailed in this report: limited interest among employers, school staff, parents, and students; the cost and logistical burdens of developing and monitoring such activities; and the other demands on students' and school staff's time. Even in states such as Michigan and Wisconsin that have created tax or subsidy incentives to promote apprenticeships, they have so far played a minor role in expanding employer involvement.

Efforts to develop intensive workplace learning linked to school programs are likely to lose momentum in the future. In most of the eight states observed in depth in this evaluation, the loss of STWOA funding and the dissolution of some STW partnerships are likely to have a major impact on prospects for expanding internships, apprenticeships, and other extended workplace learning opportunities, for two reasons.

First, developing and maintaining intensive workplace activities is labor intensive, and many schools will lack resources to sustain the effort. Many schools visited had seen their traditional cooperative education programs and the workplace activities they supported diminished in recent years, in part because budget cuts forced elimination of coordinator positions. In some places, STW

funding has countered this problem, providing resources for coordinators who arrange co-op jobs, internships, and apprenticeships. Even with STW funding, some partnerships do not have the resources to support such coordination roles in each member school. Without outside funding, staff for such functions are likely to become still scarcer.

Second, state funding and requirements that might sustain efforts to expand intensive workplace learning are uncommon. A few states have plans to fund STW-like activities, such as Michigan's CPS and Massachusetts's funding for connecting activities, but even in these cases funding beyond a year or so remains uncertain. It is relatively uncommon for states to mandate or hold schools accountable for increasing participation in workplace activities. Florida will require schools to report on workplace activities, and Maryland requires students to complete some form of community service (not necessarily related, however, to a student's career interests or school program). It is not clear whether such mandates can in the long run address how schools and their local partners will find the resources to create workplace opportunities, link students with them, and monitor their quality and their links to students' career plans and school-based learning.

Thus, a central objective of the STWOA seems likely to lose visibility and priority in many, if not in most, local partnership areas. The premise of the STWOA was that providing short-term funding to develop STW systems and their components would lead to established practices. With some exceptions, that point has not yet been reached. In other federal education or workforce development legislation, there is not yet any clear incorporation of this element of the STW vision, and thus no encouragement for states to continue pursuing it.

In just a few years, the STWOA has helped, at the state and local level, to energize educators, employers, and others with a concern for how our youth prepare for the future. STWOA funding and the efforts it has supported have given new prominence to ideas about how experiences in school

and in the community can help students chart and follow a course that will help them succeed not only in education, but also beyond graduation. However, the seed the STWOA planted needs more nurturing if it is to yield the anticipated return. For now, no sustained federal interest in STW concepts has been expressed in subsequent education or workforce development legislation. Without such high-level promotion, the overall vision of a STW system may slip into the shadows of the many other competing demands on schools and teachers.

REFERENCES

Bailey, Thomas, Katherine Hughes, and Tavis Barr. "Achieving Scale and Quality in School-to-Work Internships: Findings from an Employer Survey." Berkeley, CA: National Center for Research in Vocational Education, 1998.

Bassi, Laurie, Theresa Feeley, John Hillmeyer, and Jens Ludwig. "Learning an Employer's Look at School-to-Work Investments." Alexandria, VA: American Society for Training and Development, 1997.

Berkner, L., S. Cuccaro-Alamin, and A.C. McCormick. *Descriptive Summary of 1989-90 Beginning Postsecondary Students: 5 Years Later, with an Essay on Postsecondary Persistence and Attainment.* Washington, DC: U.S. Department of Education, National Center for Education Statistics, 1996.

Current Population Survey, 1996. Unpublished tables produced by U.S. Department of Labor, Bureau of Labor Statistics.

Economic Policy Institute. *"Real Hourly Wages by Education for all Workers, 1973-96."* EPI Analysis of U.S. Bureau of the Census Current Population Survey data. Washington, DC: Economic Policy Institute Web site, Data Zone, 1998.

Goldberger, Susan, and Richard Kazis. *Revitalizing High Schools: What the School-to-Career Movement Can Contribute.* Boston, MA: Jobs for the Future, 1998.

Hendrie, Caroline. "New Magnet School Policies Sidestep an Old Issue: Race." *Education Week,* June 10, 1998.

Hershey, Alan M., Marsha K. Silverberg, Tom Owens, and Lara K. Hulsey. *Focus for the Future: The Final Report of the National Tech-Prep Evaluation.* Princeton NJ: Mathematica Policy Research, Inc., 1998.

Hershey, Alan, Paula Hudis, Marsha Silverberg, and Josh Haimson. "Partners in Progress: Early Steps in Creating School-to-Work Systems." Princeton, NJ: Mathematica Policy Research, Inc., 1997.

Institute for Research on Higher Education. "Bringing School-to-Work to Scale: What Employers Report: First Findings from the New Administration of the National Employer Survey (NES-II)." Philadelphia, PA: University of Pennsylvania, 1997.

Levesque, Karen, Mark Premo, Robert Vergun, David Emanuel, Steven Klein, Robin Henke, and Susan Kagehiro. "Vocational Education in the United States: The Early 1990s." Publication no. NCES 95-024. Washington, DC: National Center for Education Statistics, 1995.

McMillen, Marilyn, and Phillip Kaufman. *Dropout Rates in the United States: 1996.* Washington, DC: U.S. Department of Education, National Center for Education Statistics, 1997.

Medrich, Elliott, Cathy Ramer, Linda Merola, Ron Moskowitz, and Robin White. "School-to-Work Progress Measures. A Report to the National School-to-Work Office for the Period July 1, 1996-June 30, 1997." Berkeley, CA: MPR Associates, Inc., September 1998.

National Center for Education Statistics. *Digest of Education Statistics, 1997.* Washington, DC: Government Printing Office, 1997a.

National Center for Education Statistics. *The Condition of Education, 1997.* Washington, DC: Government Printing Office, 1997b.

National Commission on Excellence in Education. *A Nation at Risk: The Imperative for Educational Reform.* Washington, DC: Government Printing Office, 1983.

Raizen, Senta A. *Reforming Education for Work: A Cognitive Science Perspective.* Berkeley, CA: National Center for Research in Vocational Education, University of California, 1989.

Silverberg, Marsha. "Facing the Challenge of Change: Experiences and Lessons of the School-to-Work/Youth Apprenticeship Demonstration." Princeton, NJ: Mathematica Policy Research, Inc., 1996.

Silverberg, Marsha, Joshua Haimson, and Alan M. Hershey. "Building Blocks for a Future School-to-Work System: Early National Implementation Results." Princeton, NJ: Mathematica Policy Research, Inc., 1998.

Stern, David, Martin McMillion, and Charles Hopkins. "Work Experience for Students in High School and College." Berkeley, CA: National Center for Research in Vocational Education, 1990. (Reprinted from *Youth and Society*, vol. 21, no. 3, March 1990, pp. 355-389.)

U.S. Department of Education and U.S. Department of Labor. *Implementation of the School-to-Work Opportunities Act of 1994.* Washington, DC: Government Printing Office, 1996.

Viadero, Debra. "Work Vs. Homework." *Education Week,* June 10, 1998.

APPENDIX A

LOCAL PARTNERSHIP SURVEY COMPLETION RATES, FALL 1996 AND FALL 1997

TABLE A.1

LOCAL PARTNERSHIP SURVEY COMPLETION RATES,
FALL 1996 AND FALL 1997

State Name	Fall 1996		Fall 1997	
	Number of Partnerships	Percentage Completed	Number of Partnerships	Percentage Completed
Substate Partnerships in Participating Implementation Grant States				
Alaska	24	100	27	96
Arizona	12	92	12	100
Colorado	35	91	63	94
Connecticut	n.a.	n.a.	8	100
Florida	28	96	28	100
Hawaii	25	88	25	96
Idaho	n.a.	n.a.	13	100
Indiana	16	100	15	100
Iowa	130	100	130	82
Kentucky	22	95	21	86
Louisiana	n.a.	n.a.	9	100
Maine	24	50	21	57
Maryland	11	91	11	100
Massachusetts	41	41	40	100
Michigan	25	88	26	85
Missouri	n.a.	n.a.	18	83
Nebraska	14	100	20	100
Nevada	n.a.	n.a.	4	75
New Hampshire	36	92	44	91
New Jersey	18	100	19	100
New Mexico	n.a.	n.a.	17	76
New York	55	85	54	78
North Carolina	60	97	71	97
Ohio	45	73	64	70
Oklahoma	12	100	41	90
Oregon	14	100	15	100
Pennsylvania	53	91	47	91
Rhode Island	n.a.	n.a.	5	80
Tennessee	n.a.	n.a.	44	68
Utah	9	100	9	100
Vermont	14	93	14	93
Washington	68	90	47	96
West Virginia	28	100	43	100
Wisconsin	30	90	30	90

TABLE A.1 *(continued)*

State Name	Fall 1996		Fall 1997	
	Number of Partnerships	Percentage Completed	Number of Partnerships	Percentage Completed
Native American, UROGs and Direct Grantees				
Alabama	1	100	1	100
Alaska	n.a.	n.a.	1	0
Arizona	2	50	4	50
California	11	82	18	61
Connecticut	1	0	n.a.	n.a.
Florida	1	100	n.a.	n.a.
Idaho	1	100	1	100
Illinois	4	75	4	75
Kansas	1	100	1	100
Kentucky	n.a.	n.a.	1	100
Maryland	1	100	1	100
Michigan	2	50	2	50
Minnesota	6	33	8	13
Missouri	1	100	2	100
New Mexico	2	50	4	50
New York	1	100	1	100
North Dakota	n.a.	n.a.	1	0
Ohio	1	100	19	53
Oklahoma	3	67	4	75
Oregon	1	100	n.a.	n.a.
Rhode Island	1	100	1	100
South Carolina	1	100	1	100
South Dakota	1	100	1	100
Tennessee	1	100	2	100
Texas	6	100	7	71
Utah	1	100	1	100
Washington	3	100	5	100
Wisconsin	1	100	2	50
Wyoming	2	50	2	100
Puerto Rico	1	100	1	100
Substate Partnerships Totals	**849**	**92**	**1,055**	**89**
All Direct Grantees	**58**	**78**	**96**	**64**
Overall Totals	**907**	**91**	**1,151**	**87**

n.a. = not applicable.

APPENDIX B

STUDENT OUTCOMES RELATED TO GOVERNMENT PERFORMANCE AND RESULTS ACT (GPRA) INDICATORS

TABLE B.1

STUDENT OUTCOMES RELATED TO GOVERNMENT PERFORMANCE AND RESULTS ACT (GPRA) INDICATORS

GPRA Indicator	STW Evaluation Data Source and Sample	Variable	Class of 1996	Class of 1997
By fall 2000, the percentage of high school graduates from STW systems completing 3 years of math and 3 years of science will increase by 10 percent (from levels in 1996)	Student transcripts for members of the class of 1996 graduating from schools in STW partnerships in eight in-depth study states	Percentage of high school graduates completing 3 years of math	83.4	
		Percentage of high school graduates completing 3 years of science	73.0	
		Percentage of high school graduates completing both 3 years of math and 3 years of science	69.0	
By fall 2000, the percentage of high school graduates, including vocational concentrators, who successfully transition into employment, further education, or the military will increase by 5 percent (from levels in 1996)	Student follow-up survey of class of 1996 graduating from schools in STW partnerships in eight in-depth study states	Percentage of all students attending some postsecondary program or military training 18 months after graduation	66.6	
		Percentage of all students in postsecondary program, military training, or full-time employment 18 months after graduation	86.8	
		Percentage of vocational concentrators attending some postsecondary program or military training 18 months after graduation	59.4	
		Percentage of vocational concentrators in postsecondary program, military training, or full-time employment 18 months after graduation	87.3	
By fall 2000, 10 percent of students in local STW systems will earn skill certificates	Local Partnership Survey (27 states participating in 1996 and 34 states participating in 1997)	Percentage of seniors in partnership schools earning skill certificates	2.4	2.6

NOTE: Future evaluation reports will track intercohort change in these measures, drawing on later rounds of student and local partnership surveys.

192

APPENDIX C

PARTICIPATION IN THREE STW COMPONENTS, BY STUDENT SUBGROUP

TABLE C.1

PARTICIPATION IN THREE STW COMPONENTS,
BY STUDENT SUBGROUP

Variable/Subgroup	Percentage of Students Participating							
	Comprehensive Career Development		Workplace Activity Linked to School		Career-Related Academics		All Three Components	
	Class of 1996	Class of 1998	Class of 1996	Class of 1998	Class of 1996	Class of 1998	Class of 1996	Class of 1998
All Students	63.3	65.3	16.1	13.3[a]	11.7	18.0[a]	2.1	3.0
Gender								
Male	62.1	62.4[a]	13.6[a]	11.6[a]	10.7	17.5	2.2	2.7
Female	64.4	68.0[a]	18.5[a]	14.9[a]	12.7	18.5	2.1	3.4
Race/Ethnicity								
African American	67.0	68.3	22.9[a]	18.1	13.1	27.9[a,b]	4.6[a]	4.8
Latino	60.6	56.6	14.9[a]	14.1	17.2	18.3[a,b]	2.3[a]	4.4
White/other	63.2	65.5	15.2[a]	12.2	11.0	15.9[a,b]	1.7[a]	2.5
Race/Ethnicity, By Gender								
African American								
Male	66.0	62.1	15.2[a]	12.9[a]	9.7	28.1	3.0	4.3
Female	67.7	74.1	28.1[a]	22.9[a]	15.5	27.7	5.7	5.2
Latino								
Male	56.5	58.2	14.0	15.2	13.2	13.9	3.8	6.3
Female	64.4	55.2	15.6	13.1	20.9	22.1	1.0	2.7
White/other								
Male	62.4	62.8[a]	13.2[a]	10.9	10.6	15.6	1.8	2.0
Female	63.9	68.0[a]	17.0[a]	13.4	11.3	16.2	1.6	3.1
Disability								
Has disability	61.2	61.8	19.8	15.8	8.7	18.1	2.0	5.3
Has no disability	63.5	65.7	15.7	13.0	12.1	18.0	2.2	2.8

TABLE C.1 *(continued)*

Variable/Subgroup	Percentage of Students Participating							
	Comprehensive Career Development		Workplace Activity Linked to School		Career-Related Academics		All Three Components	
	Class of 1996	Class of 1998	Class of 1996	Class of 1998	Class of 1996	Class of 1998	Class of 1996	Class of 1998
Family Received Welfare								
Yes	66.6	67.1	18.3	14.1	23.9[a]	23.3	4.7	3.8
No	62.9	65.4	16.2	13.1	11.2[a]	17.8	2.1	2.9
Parents' Education								
Some postsecondary	63.1	64.7	15.8	12.9	11.7	17.3	2.1	2.9
No postsecondary	64.5	66.3	16.7	14.0	11.8	19.2	2.2	3.3
Students' College Plans								
Four-Year College	63.4	67.8	14.0[a]	11.6	13.7[a]	19.2[a,b]	1.7	2.1
Two-Year College	63.7	63.6	21.3[a]	14.9	10.0[a]	13.4[a,b]	3.0	2.9
No College	62.8	62.6	15.4[a]	14.5	10.1[a]	20.1[a,b]	2.1	4.6
Urbanicity								
Urban	58.8[a]	61.7[a]	19.7	15.2	11.5[a]	18.2	3.3[a]	2.9
Suburban	62.5[a]	61.4[a]	13.5	11.4	9.5[a]	17.4	0.8[a]	2.7
Rural	72.0[a]	76.6[a]	17.5	14.9	17.8[a]	18.9	3.8[a]	3.8
Sample Size = 2,203								

SOURCE: STW 12th-grade survey, spring 1996 and spring 1998, Mathematica Policy Research, Inc.

[a]There are significant differences in the **level** of participation across subgroups within the class, at the .05 level, two-tailed test.

[b]There are significant differences across subgroups in the rate of participation **growth** from the class of 1996 to the class of 1998, at the .05 level, two-tailed test.

THE NATIONAL EVALUATION OF SCHOOL-TO-WORK IMPLEMENTATION AVAILABLE REPORTS

Hershey, Alan, and Linda Rosenberg. "School-To-Work Implementation Progress: The State Perspective in Early 1996." Princeton, NJ: Mathematica Policy Research, Inc., 1996.

Hershey, Alan, Paula Hudis, Marsha Silverberg, and Joshua Haimson. "Partners in Progress: Early Steps in Creating School-to-Work Systems." Princeton, NJ: Mathematica Policy Research, Inc., 1997.

Silverberg, Marsha. "The First National Survey of Local School-to-Work Partnerships: Data Summary." Princeton, NJ: Mathematica Policy Research, Inc., 1997.

Silverberg, Marsha, Joshua Haimson, and Alan Hershey. "Building Blocks for a Future School-to-Work System: Early National Implementation Results." Princeton, NJ: Mathematica Policy Research, Inc., 1998.

Silverberg, Marsha, and Lara Hulsey. "The 1997 National Survey of Local School-to-Work Partnerships: Data Summary." Princeton, NJ: Mathematica Policy Research, Inc., 1998.

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