

Wisconsin Efforts to Prepare Youth for Success in the Workforce

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Since establishing the nation's first apprenticeship program in 1911, the State of Wisconsin has sponsored an array of programs designed to prepare youth for workforce success. For more than a century, Wisconsin has supported a two-tier or dual strategy designed to address workforce preparation and development priorities, with a largely separate focus on preparing youth for college versus careers. The current economic slowdown has heightened the importance of providing high-quality job preparation for youth and adults in all education and training settings, from K-12 through graduate and professional schools.¹ This chapter overviews promising career preparation options for high school students in the state, including the Youth Apprenticeship Program, Project Lead the Way, Youth Options, and Dual Credit opportunities. Although a relatively high percentage of the state's young adult population (18-24) either has a degree or is enrolled in postsecondary education, a lack of data exists on how and why these students are not succeeding in college and/or in the economy. Such information is vital to improving the state's workforce productivity.

Beginning in the 1960s, the K-12 education enterprise was strengthened by federal efforts to modernize and widen access to career and technical education programs in seven fields: agriculture, business, health, home and consumer economics, marketing, technical, and technology education. In 1984, the state of Wisconsin adopted the Education for Employment standards, which required school districts to implement plans to prepare all students for career and postsecondary education by offering, for example, school-supervised work experiences, career exploration and planning, and employability skills and attitudes. In the early 1990s, Wisconsin launched the nation's first youth apprenticeship program as the Congress and President Clinton implemented the School-to-Work legislation.

Over the same time frame, the Wisconsin Department of Public Instruction has launched other programmatic and policy efforts to improve career and college readiness and access. These include the postsecondary education options initiative, expanding access to Advanced Placement (AP), and the development of program articulation arrangements with the Wisconsin Technical College System campuses for integrated programs of study (spanning grades 11-14). Most recently, the latter effort has created the Wisconsin Career Pathways website to illustrate for students, parents, counselors, and educators the options for earning college credit and advanced standing in any of the 17 national career clusters (see <https://www.wicareerpathways.org>).

Over the past two decades, the Wisconsin Technical College System has widened its workforce development mission in response to both federal initiatives aimed at

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youth and adults, as well as employers' rapidly changing technical skill demands. In addition, to better serve interested high school students, each of the 16 technical colleges has expanded transfer options with private and public four-year colleges in several professional fields, including nursing, engineering, business management, and information and computer systems.

This chapter provides a short description and implementation analysis for several of the programs mentioned above, which are overseen by the State Departments of Public Instruction and Workforce Development and the Wisconsin Technical College System. Each program's primary aim is to prepare Wisconsin's youth for success in the workforce. Specialized programs with particular niche missions that contribute indirectly to youth and workforce development, such as the Job Corps, 4-H, Science Olympiad, or First-Robotics, are beyond the scope of this review.

Two additional caveats help to frame the context for this review. Recently, high school Career Academies have attracted considerable attention on the national landscape. As described in the chapter by James Kemple in this report, a rigorous 12-year follow-up evaluation has documented the effectiveness of Career Academies in increasing the future earnings, employment, and marriage rates of high school participants, especially among young men. However, state and local attention to or interest in Career Academies appears to be very uneven. According to two national organizations – the National Academy Foundation and the Career Academy Support Network – only three Wisconsin high schools operate recognized Career Academies (all in Milwaukee), covering the fields of Engineering, Finance, Health Science, Hospitality and Tourism, and Information Technology. Several other Midwest states also have relatively low concentrations of recognized Career Academies: Illinois - 5, Indiana - 5, Michigan - 5, Minnesota - 2, Ohio - 1, and Iowa - 0.

For the programs described below, data and evidence documenting their implementation and/or impact on student outcomes (e.g., economic and social returns) is limited and/or dated. Moreover, much of the available information is generated by the sponsoring organization or agency.

Youth Apprenticeship

The Youth Apprenticeship program offers students a one- or two-year elective program leading to ten industry skill certificates.

Created in 1991 as part of a statewide school-to-work initiative, the Youth Apprenticeship program offers 11th and 12th grade students a one- or two-year elective program leading to ten industry skill certificates issued by the Department of Workforce Development. The program combines classroom instruction with mentored, on-the-job learning experiences. Students in the one-year programs complete 450 hours of mentored worksite learning, while the two-year certificate students obtain 900 hours in work-based learning, which complies with federal and state child labor laws. Through the mentored internship with several trainers in each local business, students develop a broad understanding of the specialties and career pathways in such industries as: Agriculture/Food/Natural Resources, Finance, Health (Certified Nursing Assistant), and Manufacturing. The full details on the Youth Apprenticeship program can be found at: <http://dwd.wisconsin.gov/youthapprenticeship/>

In several local Youth Apprenticeship consortia, classroom instruction is provided on state technical college campuses, which enables students to receive college credit for both the courses and associated work-based learning.

In 2008-09, the program received \$2.2 million in state support while serving 1,909 students, 1,262 employers, and 255 schools. Since its peak in 2009, Youth Apprenticeship enrollment has declined slightly to 1,697 students and 879 graduates in 2011-12. In spite of the difficult economic times recently, about 1,200 employers and 230 high schools operated programs in 2011-12. Since 1994, nearly 16,000 youth apprentices have received certificates from the Department of Workforce Development. In the pre-recession era (2005-2008), the program served roughly 1-2% of high school graduates annually.

Recent studies documenting graduate outcomes (e.g., success in the labor market and/or college), or graduate and employer satisfaction with the program are not available.

Project Lead the Way

Efforts to focus high school learning on the Science, Technology, Engineering, and Math (STEM) fields have been advancing rapidly nationally, as well as in Wisconsin over the past several years. Last year in Wisconsin, 151 high schools and 130 middle schools implemented Project Lead the Way programs with funding support from business and foundation partners, the State of Wisconsin, and federal legislation for career and technical education. Developed in upstate New York schools nearly a decade ago, Project Lead the Way is an eight-course, high school engineering curriculum using project- and problem-based learning strategies to acquaint students with engineering foundations (e.g., design and principles) and selected specializations (e.g., biotechnical, aerospace, civil, architectural). A fully implemented program provides students with 3 to 5 courses, along with four years of college preparatory math and science. End-of-course examinations for the engineering courses (similar to Advanced Placement exams) provide college credit for high-performing students. High school teachers in science, math, and career and technical education fields receive two weeks of intensive summer instruction from college-level engineering professors to become certified instructors. Each of the core courses—Introduction to Engineering Design, Principles of Engineering, and Digital Electronics—includes instructional content that is aligned with national common core standards.

The national, non-profit Project Lead the Way initiative also includes six, nine-week, middle school modules introducing younger students to robotics and automation, design and modeling, the science of technology, and other concepts through project-based learning. A Bio-Medical Sciences high school curriculum aimed at the growing demand for health and life sciences education was introduced in 2010.

Recent communications from Steve Salter, the Affiliate Director for Project Lead the Way at the Milwaukee School of Engineering, suggests that the number of

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Wisconsin schools adopting Project Lead the Way programs is growing. The 2011-12 State profile data for Wisconsin is shown in Table 1.

Table 1. Project Lead the Way in Wisconsin: Descriptive Profile

Active School Districts	150 (34% of all WI districts)	
Active Schools	301	
High schools		151
Combined middle and HS		20
Middle schools and K-8s		130
Engaged Students	40,000 (estimate)	
Active Programs	332	
Engineering		157
Bio-Medical Sciences		25
Gateway to Technology		150
Project Lead the Way-Trained Teachers	752 (total)	
Summer 2012		233

Evidence regarding the program's impact can be found on the sponsor's website. Results from selected studies in other states suggest that Project Lead the Way is associated with raising the math and science scores of participating students compared to students from similar demographic backgrounds who were not exposed to the program. Some studies have also suggested that its method of instruction accelerates closing the achievement gap for culturally diverse students. Additional details from specific studies can be found on the Student Outcomes page at <http://www.pltw.org/about-us/who-we-are>

Two studies documenting program implementation have been conducted in Wisconsin settings. In Milwaukee middle schools with high concentrations of Latino students, a longitudinal design was used to study the influence of Gateway to Technology (GTT) modules. Significantly lower reading, math, and science scores were noted in the 6th grade for the Gateway to Technology students, but each of these differences disappeared by the 8th grade when these students were compared to a sample of middle school students with similar backgrounds not enrolled in the program.

In a Wisconsin study, students enrolled in Project Lead the Way courses received higher composite and math ACT scores.

In a case study of an engineering charter school located within a Wisconsin comprehensive high school, data for 2007-08 revealed that seniors completing Project Lead the Way engineering courses, when compared to all other seniors not enrolling in these courses, were significantly more likely to:

- receive higher composite ACT scores (26.7 compared to 23.1);
- attain higher ACT math scores (27.1 compared to 23.2);
- complete about the same amount of math and science credits in high school (about 3.2 to 3.4 credits); and

- report being involved in career exploration, including talking with adults about career goals and participating in school experiences that help them clearly define career goals.²

It is important to note, however, that these study designs do not make it possible to definitively test if benefits resulted from the program itself, or whether they might stem from unmeasured factors such as student motivation.

Youth Options

Since 1992, public high school juniors and seniors have been able to enroll in two- and four-year public and private, non-profit postsecondary institutions, including tribal colleges across Wisconsin. To supplement high school course offerings, Youth Options students are afforded the opportunity to explore careers or fields of interest, gain employable skills, or pursue other general interests. In some cases, the Youth Options courses enable students to get a head start on a degree or certificate by completing college courses not available at their high school. Selected high schools have opted to allow small groups of juniors or seniors to enroll in college courses with titles such as Introduction to College Writing, Communications for the 21st Century, History 101, or Anthropology. In other districts, Youth Options courses are embedded in high school/ postsecondary career and technical education programs (e.g., Computer Aided Design, Business Law, Accounting 2, Animal Sciences) or certain Youth Apprenticeship programs (such as Medical Terminology, Certified Nursing Assistant, or C++ Programming). However, the vast majority of Youth Options courses are individual enrollments on a postsecondary education campus.

Local school boards determine whether or not the course of interest meets the high school graduation requirements without duplicating existing courses. Once this determination is made, the board provides students and their families with payment for tuition, fees, and books. Students completing approved courses receive both high school and college credit. Additionally, a limited number of low-income students are eligible to receive partial travel cost reimbursement from the Department of Public Instruction once the semester is completed.

As noted in Table 2 below, the total number of students applying for and receiving the Youth Options credit since 2003 has stabilized to between 7,200 to 8,700 annually. Each student, on average, receives about 3.0 credits per enrolled course. Students attending the University of Wisconsin System or private non-profit colleges earn, on average, slightly more credit per enrolled course than students attending technical colleges. Of the 8,574 courses students completed through Youth Options in 2010-11, 63% were Wisconsin Technical College System courses and 33% were courses on UW-System campuses. Finally, it is important to note many Youth Options students complete more than one college course during their junior or senior year. Thus, the figures in Table 2 represent duplicated numbers of students (the same student was counted each time they took a course).

Youth Options courses enable students to get a head start on a degree or certificate by completing college courses not available at their high school.

Table 2. Annual Youth Options course completions and average credit generation
(Duplicated head count)

Year	Students	Avg. Credits	Wis. Technical College System		University of Wisconsin System		Private	
			Students	Credits	Students	Credits	Students	Credits
2011	8,574	2.94	5,365	2.76	2,803	3.15	406	3.30
2010	7,717	2.89	5,146	2.73	2,198	3.14	373	3.14
2009	7,967	2.94	5,300	2.77	2,314	3.21	353	3.29
2008	7,435	2.90	4,974	2.71	2,129	3.18	332	3.39
2007	7,149	2.91	4,778	2.71	1,926	3.16	445	3.40
2006	7,508	2.90	5,158	2.68	1,865	3.23	485	3.31
2005	8,581	2.90	6,153	2.71	1,922	3.22	506	3.37
2004	8,748	2.86	6,231	2.68	1,892	3.16	625	3.44
2003	5,599	2.93	3,692	2.79	1,467	3.13	440	3.19

In 2011, Wisconsin high school students completed 8,574 Youth Options courses and earned an average of 3 college credits per course.

In June 2011, approximately 70,880 students graduated from Wisconsin high schools. However, since the data reported annually represents “only the number of Youth Options courses completed,” and does not include the student names or ID numbers, staff at the Department of Public Instruction suggest that less than 10% of seniors graduate with Youth Options credits. Longitudinal data on the influence of Youth Options courses and dual credit on students’ postsecondary education choices, transitions, and successes will be available soon, once the state longitudinal (K-16) data system is in place.

Dual Credit

Students completing college level courses and exams (e.g., Advanced Placement course exams) while still in high school has been a popular high school innovation over the past decade. In 2002-03, more than 71% of U.S. high schools and 57% of U.S. postsecondary institutions offered high school students the opportunity to complete college courses.³ As Kleiner and Lewis noted, more than 813,000 secondary school students took a college-credit course during the 2002-03 school year.⁴

Most Wisconsin school districts and technical colleges have developed articulation agreements, which are formal agreements “. . . that allow credit for a course or sequence of courses taken at one institution to be applied in specific programs at another institution. These agreements may be between a high school and a postsecondary institution, or among postsecondary institutions.” Beyond the Youth Options program described earlier, two types of dual credit are available to students once articulation agreements are in place:⁵

Advanced standing credit: A high school student who has successfully completed a course taught by a high school teacher using a high school curriculum, wherein the high school and a technical college have compared curriculum competencies and developed an articulation course agreement, can receive advanced standing credit. Credit is awarded upon enrollment in the technical college; however, grades are not recorded on a technical college transcript.

Transcripted credit: Postsecondary credit earned by a high school student for successfully completing a college-level course taught via an articulation agreement is called transcripted credit. Both credit and grades are reported directly on a technical college transcript.

As noted in Table 3, the number of high school students participating in advanced standing and transcripted credit courses has increased steadily since 2006-07, while the number completing Youth Options credit has declined slightly. (Please note that the Youth Options numbers in Table 2 are different. Table 3 presents unduplicated numbers.)

Table 3. Unduplicated headcount of high school students enrolling in Youth Options and Advanced Standing or Transcripted credit courses at Wisconsin Technical College System campuses

Academic Year	Students Enrolled in Youth Options Credit	Students Enrolled in Transcripted or Advanced Standing Credit
2010-11	2,392	18,252
2009-10	2,912	16,853
2008-09	2,863	13,922
2007-08	2,563	12,324
2006-07	3,019	11,196

Of the 70,000 students graduating from Wisconsin high schools in June 2012, roughly 20-22% completed credit at a Wisconsin technical college before leaving high school.

A major policy question remains: To what extent does dual credit improve college-going rates and initial student success once they enroll in postsecondary institutions?

Recent studies have documented the positive impact of dual credit/dual enrollment programs in Florida and New York on a number of indicators, including college enrollment, first-year grade point average (GPA), retention to the second year, and degree completion.⁶

In a recent analysis of data from the 2007-2011 Wisconsin Technical College System student record database, a team of UW-Madison researchers uncovered some useful information about the effects of dual credit. Of the 177,000 technical

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college students who were enrolled in 2009-10 and had graduated from high school recently (2007-09), 8.5% had completed dual credit. Completion of dual credit was a small but statistically significant predictor of a higher GPA during the first year of postsecondary education—a widely documented indicator of student success. Other factors that were largely associated with obtaining high GPAs included 10th grade math and science scores and being female.⁷

Conclusion

Improving access and quality in both K-12 and higher education is a continuing fiscal struggle for state, local, and institutional leaders. A high performing economy depends on all individuals acquiring the knowledge, skills, dispositions, and human talents that enable them to create larger economic and social returns both for themselves and their communities.⁸ A relatively high percentage of the state's young adult population (18-24) either has a degree or is enrolled in postsecondary education—81.3% in Wisconsin, compared to 71.7% in the U.S. on average.⁹ However, we lack data on how and why these students are not succeeding in college and/or in the economy. Such information is vital to improving the state's workforce productivity.

In Wisconsin, 81.3% of 18- to 24-year-olds have a degree or are enrolled in postsecondary education, compared to 71.7% in the U.S.

Sustaining the state's two-tiered system for workforce development has limited attention to linking and integrating the workforce development needs of youth leaving high school, as well as young adults currently in the workplace. State leaders should seriously consider strategies for:

- integrating more fully and strategically the dual system of college and career readiness, and
- expediting the development and use of K-16 student record data systems at the state and regional level to increase students' postsecondary education and employment success.

2013 is an exciting and pivotal time for education, government, and business leaders in Wisconsin to create opportunities for new and effective strategies that prepare youth for success in the workforce.

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Endnotes

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