ADVANCE CTE
State Leaders Connecting Learning to Work

Measuring Work-based Learning for Continuous Improvement

THE STATE'S ROLE IN WORK-BASED LEARNING

The *Connecting the Classroom to Careers* series takes a closer look at the state's role in expanding high-quality work-based learning opportunities for all students, with a particular focus on untangling the major barriers at the K-12 level.

Each installment will explore a specific issue and highlight innovative or leading state approaches, as well as key policy questions and relevant resources that state and local leaders should consider as they examine their own systems.

As the nation's education leaders and employers seek to work together to create a well-prepared, competitive workforce, work-based learning – a strategy that has existed for decades – is back in the spotlight as an effective strategy for connecting students' classroom learning to their future careers.

With this renewed interest, the work-based learning of today is being transformed as a means to build on students' academic experience and career interests, rather than simply to release them from the school day for work that is unconnected to their education. Work-based learning can and should be available to all students regardless of whether they are enrolled in a Career Technical Education (CTE) program of study or not. What is most important is that the experience is informed by workplace standards and is connected to students' classroom learning as a means to provide context and relevancy.[i]

What is Work-based Learning?

Work-based learning is an educational strategy that offers students an opportunity to reinforce and deepen their classroom learning, explore future career fields and demonstrate their skills in an authentic setting.

This series defines work-based learning as a continuum of experiences that helps prepare students for postsecondary education and careers. High-quality work-based learning should begin in the early grades with activities that help build students' awareness of possible careers. This exploration continues through middle and high school with job shadowing or mentoring to better inform students' decision making, and culminates with more intensive career preparation activities such as school-based enterprises, internships and pre-apprenticeships as students move along in their career pathway from high school to postsecondary education.[i]

THE STATE'S ROLE IN MEASURING WORK-BASED LEARNING

One of the most important — yet perhaps most challenging — roles that states play in work-based learning is measuring and evaluating program quality. While many programs are designed and operated at the local level, a strategic data collection and evaluation plan can help states ensure program quality, identify and scale successful programs, and share promising practices.

The data that a state collects may depend on the type of work-based learning program it wishes to evaluate. For low-touch activities such as job shadowing or mentoring, it may suffice to measure the number of students who participate in the program. Descriptive metrics such as this illustrate the breadth but not the quality of the program. For more intensive experiences such as internships or apprenticeships, states may want to consider a holistic evaluation of the program's quality that may include measures of student skill gain and the degree to which the program aligns to industry standards.

States can measure work-based learning in two ways: a systems-level approach and a student-level approach. A systems-level approach examines program data such as student participation, industry alignment and adherence to occupational standards to assess the quality of and equitable access to programs offered. This can allow states to gauge the breadth and quality of work-based learning, help employers understand the competencies of students graduating from such programs, and serve as an indicator of career readiness.

In a student-level approach to measuring work-based learning, the student, rather than the program, is the unit of analysis. Relevant indicators may include demographics of student participants; attendance rates; and student skill gain as measured through assessments, student portfolios or employer evaluations. A student-level approach often presents more obstacles, as it requires states to design a valid and reliable system to assess student learning and collect data in a consistent way across districts.

While both the systems-level and the student-level approaches involve different units of analysis, they are not mutually exclusive. In fact, states should consider using both approaches simultaneously. As states work to develop new accountability systems under the Every Student Succeeds Act (ESSA), some are considering career readiness indicators that include both systems-level and student-level measures of work-based learning. However, measuring work-based learning and ensuring program quality is a critical step before scaling a program statewide or valuing it within an accountability system.

While work-based learning has been offered formally and informally at the local level for decades, most states are new to measuring work-based learning. In the spirit of "that which gets measured gets done," states can promote high-quality work-based learning through a strong data collection and evaluation strategy.

KEY QUESTIONS FOR MEASURING WORK-BASED LEARNING

Creating a Strategy

- Does your state already collect data on work-based learning? If so, what kind of data are being collected and how are they being used? Does the population include CTE students, CTE concentrators or all students?
- What does your state want to achieve through its work-based learning measurement strategy? Is the goal to monitor and learn from work-based learning activites or identify and improve program quality?
- Should this goal be differentiated for activities along the work-based learning continuum? If so, how are data measured differently for each activity? For example, what data are collected for job shadowing as compared to internships?
- Does your state have a definition of work-based learning? Is this definition codified in state statute? Is this definition used consistently across state agencies and at the local level?
- Are state policies in place that could be used to develop and scale a work-based learning measurement strategy?

Collecting the Data

- Are there state policies in place that regulate data collection activities? Are there privacy regulations that could complicate data collection and evaluation?
- What data collection infrastructure, such as the state longitudinal data system, is already being used at the state and local level? Are data-sharing agreements in place with local schools and districts?
- Can existing data infrastructure be expanded to include work-based learning?
- What can your state do to ensure reliable data submissions? Are there incentives or penalties available to motivate compliance?
- How do you ensure that data are consistent and reliable across the state? What technical assistance is provided to support consistent data collection? Are there checks in place such as monitoring and auditing data collection activities to ensure consistency and validity statewide?

Evaluating Program Quality

- How does your state define student-level success for work-based learning? Program-level success? What must be present for a program to be considered "high quality?"
- How does your state's data collection strategy connect to your definition of work-based learning? Are you measuring program outcomes (such as skill gain or employment) or only outputs (such as participation)?
- What role does business and industry play in evaluating work-based learning programs at the state and/or local level?
- How can evaluations be used to create a feedback loop and ensure continuous program improvement? What is being done to target and assist programs in need of improvement? What is being done to strengthen or phase out low-quality work-based learning programs?

ENSURING PROGRAM QUALITY

High-quality work-based learning opportunities can provide students with authentic, real-world experiences that are aligned to industry practices and prepare them for future careers. Yet, quality can be defined differently depending on the type of program. While short-term, exploratory activities such as job shadows and career days are designed to increase student awareness about career opportunities, intensive work-based learning experiences such as internships and youth apprenticeships should involve an element of demonstrable skill gain. A primary function of a work-based learning measurement strategy is to define and differentiate intended outcomes for different types of experiences, and then use those outcomes to ensure that programs are high-quality and meaningful for students.

WEST VIRGINIA'S SIMULATED WORKPLACE

West Virginia employs a systems-level approach to measuring and evaluating the quality of its work-based learning program, Simulated Workplace. By leveraging third-party evaluations from industry partners, the West Virginia Department of Education not only showcases its CTE programs to local industry, but is also able to improve the quality and authenticity of work-based learning for participating students. Creating an authentic work environment that meets industry standards allows students to develop the technical and professional skills necessary for future success.

> ### What Is a High-Quality Work-based Learning Experience?
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> **Tennessee** uses the following 12 components to define a high-quality work-based learning experience:
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> 1. A purposeful focus on applied learning in preparation for postsecondary education and careers
> 2. Learning outcomes as the driver for designing experiences and Personalized Learning Plans
> 3. Relevance to student interests, their plan of study and learning goals
> 4. Integration with curriculum or connection to related instruction
> 5. Sufficient variety to provide exposure to multiple career options
> 6. Sufficient depth to allow for employability skill development and professional community engagement
> 7. Ongoing interaction with professionals from industry and the community
> 8. Close supervision from both teachers and employers
> 9. Opportunities for reflection and analysis
> 10. Assessment of student learning that is aligned with industry-specific expectations
> 11. Alignment with postsecondary and career opportunities regionally
> 12. Documentation of student learning through the development of artifacts and portfolios

The Simulated Workplace program was launched in 2013 after industry leaders expressed a need for students to learn professional skills – such as punctuality, teamwork and maintaining safe workspaces - in addition to the technical skills typically taught in CTE classrooms. Simulated Workplace was initially designed for CTE programs and is operated under the Division of Career Technical Education, though the state says there is increasing interest in expanding the program to academic classrooms. After a four-year pilot and roll-out at an increasing number of high schools throughout the state, the program was scaled statewide in 2015. At the same time, the West Virginia Board of Education voted to adopt 12 Simulated Workplace protocols, which govern the design of the programs and ensure consistency and quality. During the 2015 school year, over 13,000 students participated in more than 500 Simulated Workplace classrooms across West Virginia.

Through the Simulated Workplace program, students transform their classrooms into businesses to create an authentic environment where they can develop and practice both technical and professional skills. Participants in the program are treated like employees: they are required to pass an interview for entry into the class, fill assigned roles within the company, participate in random drug tests, write a company handbook and pass a safety training. Students also participate in an industry evaluation where inspectors, who are employers from the field, observe and rate programs based on their adherence to industry standards — not unlike an actual business.

While industry evaluations provide specific feedback to students and teacher facilitators, they also give the state an opportunity to evaluate the quality of a specific program and the degree to which it aligns with industry norms. The evaluation is coordinated by the Department of Education, which recruits employers to visit the classroom as inspectors, schedules site visits, and even provides an Industry Evaluation rubric that inspectors can use to assess Simulated Workplace programs. The department's Industry Evaluation rubric was designed collaboratively with private sector and higher education leaders and includes occupational norms for safety, equipment and workplace behavior.

Sample Questions from the Industry Evaluation Rubric

- "Classroom/lab area represents an applicable workplace environment"
- "Proper industry safety signage displayed"
- "Equipment and tools are up-to-date to meet occupational standards"
- "Students can discuss how acquired program skills will assist in furthering their education and career"

Rating Scale:

Green	- Outstanding, meets industry standards in all areas and is a model for others.
Amber/Green	- Meets industry standards in most areas but not quite at industry standards.
Amber/Red	- Meets some industry standards, but needs improvement.
Red	- Does not meet industry standards and requires significant improvement.

The industry evaluation also provides a summative assessment of program quality that the state can use to identify programs in need of improvement. Simulated Workplace programs that receive an evaluation score of 85 percent or higher are recognized by the Department of Education as an "Industry Endorsed Program." However, if a program receives a rating lower than 85 percent, the Department sends a technical support team that assists students and administrators in developing a program improvement plan. Once a program develops an improvement plan and addresses the issues surfaced in the industry evaluation, it can request an additional review. If a program continues to fail the evaluation, the state has the option to not approve the program for state or federal dollars. This cycle of evaluation and technical assistance creates a feedback loop that allows the state to highlight quality programs, support those in need of improvement and phase out low-quality programs.

HOW TENNESSEE ENCOURAGES CONTINUOUS IMPROVEMENT AT THE LOCAL LEVEL

In **Tennessee**, a systems-level approach to program evaluation and improvement is part of the state's new framework for work-based learning. The framework, which the State Board of Education adopted in 2014 as part of a wave of comprehensive reforms under Governor Bill Haslam's Drive to 55 campaign[ii], requires local districts to evaluate work-based learning programs and to strive for continuous improvement. While Tennessee is still in the early stages of collecting and evaluating data at the state level, the state has begun a process of measuring work-based learning by supporting local districts as they monitor and evaluate their own programs at the local system level and student level.

Tennessee's framework outlines the core components and expectations for activities, such as a credit-bearing work-based learning capstone. The capstone – which can be an apprenticeship, cooperative education, internship, or immersive classroom-based experience – is taken as a course within a student's program of study and allows the student to apply academic and technical knowledge to the workplace. Student portfolios demonstrate standard attainment and employability skills to ensure depth of experience and learning. While Tennessee delegates much of the coordination and administration of work-based learning to local school boards, it requires them to adopt processes for evaluation and assessment, based on a common set of state-developed standards, to ensure the experiences they provide are high quality.

To support local school boards in this work, the Department of Education provides guidance in the form of a toolbox of evaluation resources and the Work-based Learning Implementation Guide, which describes how local school boards should evaluate program quality and promote continuous improvement. Programs must align with the work-based learning evaluation policies articulated in the framework for districts to offer credit for the capstone course.

The Department encourages local school boards to include industry partners in the evaluation process and even provides a sample employer satisfaction survey for program coordinators to use. This resource aims to identify ways in which to improve the experience for industry partners as well as gauge the engagement and preparation of students entering the program. Further, the state's Work-based Learning Framework requires local boards to adopt a "continuous improvement" process to engage stakeholders and ensure that programs are sustainable and aligned to workforce needs. Local boards can access program evaluation frameworks in the toolbox that allow them to reflect on and identify opportunities to improve work-based learning.

While Tennessee is in the initial stages of building the data infrastructure to monitor programs at the state level, the state is designing and implementing a three-tiered evaluation and assessment strategy to determine the regional alignment of work-based learning programs to workforce needs, quality program measures for district implementation, and student growth measures to demonstrate learning. Ultimately, the state plans to use information gathered through this process to evaluate student participation in work-based learning, alignment of programs to regional employment needs and provide targeted guidance to districts.

How Other States Collect Work-based Learning Data

Just getting the processes and protocols off the ground can be the hardest part of measuring work-based learning (WBL). The best place to start is by creating a consistent and measureable definition and integrating it into existing data collection systems. Here are some examples of other states that have already begun this work:

- **Virginia** collects WBL data using eight designated course codes in its CTE Reporting System. Categories of WBL experience include Cooperative Education, Youth Apprenticeship, Internship, Mentorship, Job Shadowing, Service Learning, Clinical Experience and Supervised Agricultural Experience. Submissions through the CTE Reporting System allow Virginia to monitor different types of WBL at the state level.

- In **South Carolina**, the Education and Economic Development Act requires schools to collect and report WBL participation through the state's school data system, which includes 10 state-approved categories of WBL, ranging in intensity from job shadowing to apprenticeships. Data are then aggregated and included in school, district and state report cards.

- **Georgia** maintains a work-based learning database called C-NET, which captures training plans, student progress and employer information for each WBL opportunity. This database allows administrators with the Department of Education and local system employees to access aggregated reports on WBL participation.

MEASURING STUDENT OUTCOMES THROUGH CONNECTING ACTIVITIES IN MASSACHUSETTS

States can also measure student outcomes to ensure work-based learning programs are preparing students for the workforce effectively. A student-level approach allows the state to monitor student progress and success, which in turn

can help the state identify challenges in program design or opportunities to scale a successful program. As useful as student-level data collection is, however, many state education agencies do not have the infrastructure or means to determine student outcomes from work-based learning programs. One innovative strategy comes from **Massachusetts**, where the Department of Elementary and Secondary Education uses a skill assessment tool to collect and report student work-based learning performance data.

Connecting Activities Performance Measures

During Fiscal Year 2015, Connecting Activities generated the following outcomes:

- **10,487** students were placed in internships at **3,477** employer sites
- Employers invested **$14,690,000** in wages to support student internships, almost a **5:1 match** (the legislation requires a 2:1 match, but the initiative regularly exceeds that)
- **7,677 (73 percent)** students used the Massachusetts Work-Based Learning Plan on the job
- **7,677** students participated in classes/workshops including career exploration, work readiness and internship workshops
- **2,775** employers sponsored career awareness and exploration activities for students including career days, job shadowing and guest speaker programs
- **185** high schools were partners in the Connecting Activities initiative and another 50 were members, accounting for more than half of the state's 393 public high schools

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BUILDING A WORK-BASED LEARNING PLAN

Massachusetts provides one example of how states can evaluate and collect student-level data for a well-defined work-based learning experience. Although Massachusetts collects and examines systems-level data as well, the state is particularly interesting for its approach to measuring student-level learning outcomes.

In Massachusetts, all students can access work experience and career development opportunities through its School to Career Connecting Activities Initiative (Connecting Activities). Originally piloted through a five-year federal grant, Connecting Activities was formally launched in 1997 and has continued to be supported through a dedicated line item in the state budget. The program is operated by 16 local Workforce Development Boards that each work as intermediaries to build public-private partnerships between schools and employers. These boards support career exploration through internships, job shadow days, career days, employer guest speaker programs, workshops, teacher externships and curriculum development. In 2015 alone, about 10,500 students — most of whom were enrolled in comprehensive high schools, not the Commonwealth's full-time, regional CTE high schools — participated in internships through Connecting Activities.
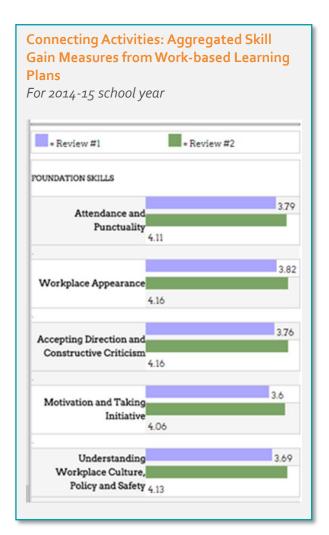
Program staff and employers work together to structure the experience around the Massachusetts Work-based Learning Plan, which guides student learning and connects workplace activities to specific career skills.

The plan includes four major components:
- A job description;
- A list of foundation skills — including "work ethic and professionalism skills" such as punctuality, workplace appearance, and taking initiative and "communication and interpersonal skills" such as speaking, listening and interacting with co-workers — that are universal to all jobs and aligned to the state's definition of college and career readiness;
- A customized list of workplace skills that are selected by the worksite supervisor and the program coordinator; and
- An evaluation of the student's performance and progress.

For the performance evaluation, worksite supervisors assess students on their foundation and workplace skill competency using a five-point scale. Evaluations are completed at least twice over the course of the experience – at the beginning of the work experience to determine a baseline level of performance and then at the end of the program to measure progress and skill gain.

Connecting Activities: Aggregated Skill Gain Measures from Work-based Learning Plans
For 2014-15 school year

- Review #1
- Review #2

FOUNDATION SKILLS

Attendance and Punctuality: 3.79 / 4.11
Workplace Appearance: 3.82 / 4.16
Accepting Direction and Constructive Criticism: 3.76 / 4.16
Motivation and Taking Initiative: 3.6 / 4.06
Understanding Workplace Culture, Policy and Safety: 3.69 / 4.13

LEVERAGING DATA SYSTEMS TO EVALUATE STUDENT OUTCOMES

Massachusetts collects Connecting Activities data through an online portal called the Massachusetts Career Ready Database, which is maintained by the Department. This database, which was launched in 2008 to support Connecting Activities programs, serves not only as a resource for students and employers to guide the work experience, but also as a mechanism to collect, monitor and compare data at the local, regional and state level. Work-based Learning Plans can be entered through the database system, uploaded as an electronic document, submitted by paper or entered through a mobile application. Entering the plan through the database allows students and program coordinators to track progress and reflect on skills learned. The database also allows program coordinators to view aggregated data from the Work-based Learning Plans to identify the foundation and workplace skills with the lowest growth and to focus their program design on developing those skills.

Most notably, the system allows the state to calculate student outcomes by comparing the baseline student skills evaluation—which is submitted at the beginning of the program — to the final assessment. This evaluation provides a measure of the skills gained through Connecting Activities — a valuable student outcome measure that helps determine the effectiveness of the program. Massachusetts also uses the database to identify trends across the Connecting Activities programs and determine whether industry partners are meeting the legislatively mandated 2:1 employer funding match, which program administrators have consistently exceeded. The state compiles data into an easy-to-read dashboard, which it shares publicly on the Connecting Activities website.

One ongoing challenge with the Career Ready Database is that, even though workforce boards are required to submit data on student participation directly to the state through the online database on a quarterly basis, the Work-based Learning Plan itself is not mandatory. As such, employers and program coordinators sometimes elect to use their own system of evaluation instead. In school year 2014-15, 73 percent of student work-based learning opportunities were evaluated using the Work-based Learning Plan.

Another challenge is ensuring consistency and reliability across worksite supervisor evaluations, which are subject to variability. While one supervisor may consider a student to be "Proficient" at a specific foundation skill, another may rate the student merely "Competent." The Department has worked to address this issue by developing a rubric that

describes the performance levels in objective terms and by providing guidance and training materials for worksite supervisors in use of the rubric. This guidance includes a short training video that explains how to evaluate students using the Work-based Learning Plan.

LESSONS LEARNED

- Engage business and industry in the program evaluation process to help ensure that work-based learning programs are authentic and meaningful.

- As program participants, students have valuable perspective on the effectiveness of work-based learning programs. Involving students in the evaluation and program improvement process can provide valuable feedback and build student ownership.

- Do not shy away from evaluating employability skills. Although these skills can be difficult to measure, they help gauge student readiness for entering the workforce. Supervisor evaluations, such as those used in Massachusetts for the Connecting Activities Work-based Learning Plan, leverage the expertise and observations of site hosts to evaluate student competencies.

- While it is easier to start by collecting descriptive work-based learning data – such as the number of hours worked, number of host sites provided or amount of wages earned – it may be appropriate to develop new systems to collect data on student outcomes. Data such as skill gain demonstrate the outcomes of work-based learning and can indicate whether or not the program is adequately meeting its objectives.

- The work does not end when the evaluation is completed. Be sure to develop a continuous improvement process to push all programs to higher levels of quality and phase out low-performing programs as needed.

RESOURCES

- Massachusetts' Connecting Activities Guide and Glossary, FY15 Annual Report, History and Performance Metrics

- Training Video for Employers Sponsoring Youth Work-based Learning Experiences through Connecting Activities

- South Carolina's Work-based Learning Manual

- Tennessee's Work-Based Learning Toolbox, Implementation Guide and Career Practicum Course Standards

- Virginia's CTE Reporting System User's Manual

- West Virginia: Simulated Workplace Operational Manual and Industry Evaluation Rubric

[i] Darche, S. et al. (2009). "Work-based Learning in California: Opportunities and Models for Expansion." http://www.connectedcalifornia.org/downloads/WBLReport.pdf

[ii] For more on Tennessee's framework and vision for work-based learning, see Advance CTE (2015). "Setting a Statewide Vision for Work-based Learning." https://careertech.org/sites/default/files/WBL_casestudy_Vision.pdf