Supporting and Measuring Career Readiness

Hot topics, common challenges, and practical resources

Takeaways from a workshop with 10 U.S. Regional Educational Laboratories

Workshop hosted by the Cross-REL High School Completion Work Group, led by REL Appalachia
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This report is available on the Regional Educational Laboratory Appalachia website: https://ies.ed.gov/ncee/edlabs/regions/appalachia/events/materials/supporting-and-measuring-career-readiness.pdf.

Introduction

The world of work is changing rapidly and employers increasingly critique the preparation of incoming graduates, with only 11 percent agreeing students have the competencies needed to succeed in the workplace.[i] Add to this picture low college completion rates and high remediation rates and the story is clear: too many students are graduating high school unprepared for college or career.[ii]

Educators across the nation are grappling with how to better prepare students to succeed in the workforce, and their efforts are supported by recent federal legislation.[iii] However, the rapidly changing workforce makes it challenging to come to consensus around what skills students should have when they leave high school. What does it mean to be "career ready," and how can such a complex and evolving concept best be assessed and supported?

Why care about measurement?

Measurement is a challenging but critical component of supporting career readiness at all levels of the education system. Done right, it can help shape formative feedback to students, support program evaluation, and contribute to accountability systems. Prior to the workshop, REL Appalachia conducted a literature scan of career-readiness measures, which outlines considerations for developing a career-readiness framework and provides strategies for sifting through the array of tools available for measuring career readiness.
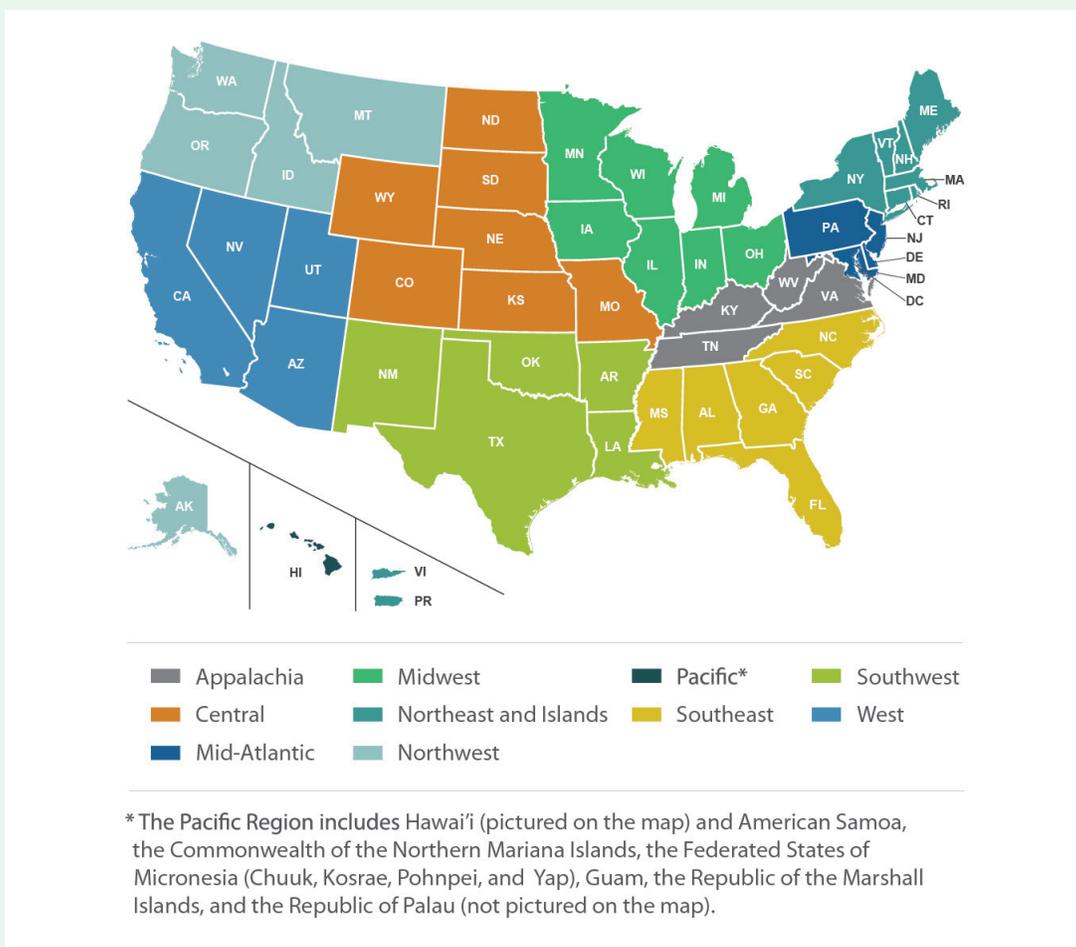
In an effort to address these questions, Regional Educational Laboratory (REL) Appalachia convened representatives from all ten RELs together with nationally renowned experts for a workshop to discuss how educators and researchers in each region are addressing the development and measurement of career readiness, and to share ideas and resources for how to improve and sync these efforts nationally.*

* The workshop took place on July 23, 2019 in Arlington, Virginia. Workshop participants included David Conley, professor, University of Oregon; Amy Loyd, associate vice president, JFF, Scott Solberg, professor, Boston University, and 23 REL researchers with expertise in career readiness. As an event summary, the topics and content included in this document are limited to those discussed in the meeting and are therefore driven by those in attendance. While not all-inclusive of key challenges in this space, the topics highlighted in this document are of substantial importance in diverse communities across the nation.

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What are Regional Educational Laboratories?

The ten Regional Educational Laboratories (RELs) work in partnership with school districts, state departments of education, and other educational stakeholders to use data and research to improve academic outcomes for students.

RELs can support education stakeholders through the following activities:

- Developing sustained partnerships with policymakers and practitioners to address critical problems of practice.

- Conducting research, providing technical support, and disseminating research findings as part of a focused and coherent goal or set of related goals.

- Ensuring that education leaders are aware of the resources available through the RELs.

- Increasing educators' individual and organizational capacity to conduct and use research.

- Increasing the use of research findings in education decisionmaking, particularly at state education agencies.

Appalachia	Midwest	Pacific*	Southwest
Central	Northeast and Islands	Southeast	West
Mid-Atlantic	Northwest		

* The Pacific Region includes Hawai'i (pictured on the map) and American Samoa, the Commonwealth of the Northern Mariana Islands, the Federated States of Micronesia (Chuuk, Kosrae, Pohnpei, and Yap), Guam, the Republic of the Marshall Islands, and the Republic of Palau (not pictured on the map).

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How are the RELs supporting career readiness?

The RELs are actively supporting educational stakeholders across the nation who are grappling with the hot topics discussed here. Throughout the brief we profile REL projects related to each topic; below are quick links to the relevant projects, organized by region.

REL Appalachia
- Assessment of the Alignment between West Virginia's High School Career and Technical Education Programs and the Labor Market
- Trends in Virginia High School Career and Technical Education Credential Attainment and Postsecondary Enrollment Outcomes

REL Central
- Review of Career and Technical Education in Two States
- Delivering Work-Based Learning in Rural Schools Webinar
- Measuring Civic Readiness: A Review of Instruments

REL Mid-Atlantic
- Research-Based Instruments for Measuring Students' Soft Skills

REL Midwest
- The Postsecondary Pathways of Minnesota Public High School Graduates: Investigating Opportunity Gaps

REL Northeast and Islands
- A Review of Instruments for Measuring Social and Emotional Learning Skills Among Secondary School Students
- Rhode Island Pipelines to College and Career Partnership

REL Northwest
- Middle School Career and Technical Education: A Training for State Leaders on Gathering Stakeholder Feedback for Design Purposes

REL Pacific
- Defining and Implementing Career-Relevant Educational Content in Communities with High Levels of Out-Migration

REL Southeast
- Florida Career Readiness Research Alliance

REL Southwest
- Postsecondary Outcomes for Students in High School Career and Technical Education Programs in Central Texas

REL West
- Education and Career Planning in High School: A Longitudinal Study of School and Student Characteristics and College-Going Behaviors
- Multi-Year Education and Career Planning Coaching for Data Use and Student Support
- Strengthening Cross-Sector Data Infrastructure in Rural California Career Pathways Consortia

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During the workshop and through activities leading up to it, researchers identified four hot topics that cut across the work of REL staff and invited experts. Using the lens of these four topics, this document provides an overview of some of the issues educators and researchers are grappling with across the nation. For each topic, we give an overview of why it is critical to the development of career readiness, a summary of common challenges, and a list of practical resources that may be useful to educators and researchers grappling with this issue in their own work.

Defining and measuring the core competencies associated with career readiness (page 5)

Before educators can develop students' career readiness, they must first reach consensus on what being career ready means. This entails defining the cross-cutting competencies necessary to succeed in the current and future workforce. Common challenges include selecting which competencies to include in college- and career-readiness frameworks and assessing hard-to-measure constructs (e.g., collaboration, conscientiousness) in valid and reliable ways.

Aligning education programs to the future of work (page 9)

As the global labor market undergoes radical shifts due to automation and intelligent technologies, Americans are simultaneously becoming less geographically mobile. To prepare students for the realities of the future world of work, workshop participants discussed the importance of educators and policymakers understanding what that means for their region. Common challenges include aligning educational programming with workforce projections and ensuring students are earning credentials that are valued by employers.

Cultivating career awareness and planning earlier in students' academic careers (page 14)

Educators and researchers increasingly see career awareness as an important tool that can be introduced in late elementary or middle school to engage parents and students, inform course selection, and guide work-based learning experiences. Common challenges include defining and supporting quality implementation of the academic and career planning process and ensuring the documentation of students' plans follow them when they change schools.

Partnering with employers to provide quality work-based learning experiences (page 17)

Work-based learning experiences, such as job shadows, internships, and apprenticeships, help students develop key competencies, build their referral network, and make more informed choices about their future. Common challenges include increasing access to opportunities and measuring student learning during work-based learning experiences.

Defining and measuring the core competencies associated with career readiness

College- and career-readiness frameworks can be useful for both researchers and practitioners because they help answer the question "How will we know if we're successful?" A framework can guide researchers on what needs to be measured and can help practitioners articulate and map the program features needed to ensure students are developing the right competencies. But which cross-cutting competencies are necessary for success in the workforce across a range of different industries?

In addition to academic content knowledge and industry-specific technical knowledge and skills, educators and researchers typically agree that students need to develop competencies in the following three categories:

- **Intrapersonal competencies** refer to ways of dealing with oneself, including one's thoughts and emotions. These are the dispositions and skills directed and applied inwardly such as self-regulation and conscientiousness.[iv]

- **Interpersonal competencies** refer to the dispositions and skills directed toward other people, institutions, or social structures such as communication and collaboration skills.[v] They involve expressing information to others as well as interpreting others' messages and responding appropriately.[vi]

- **Cognitive competencies** are the processes individuals use to solve problems, make decisions, and create new ideas, such as critical thinking and creativity.[vii]

The workshop discussion focused on these competencies recognizing there is limited consensus in the field on which competencies to prioritize, how to support students' competency development, and how to best assess them.

Common challenges

Workshop participants reported that across the REL regions, educators are actively debating which competencies constitute career readiness. Different college and career readiness frameworks include different subsets of competencies and may use different terminologies to refer to the same competency. A REL Appalachia synthesis of twelve frameworks revealed that although some key competencies repeatedly appeared across frameworks—such as collaboration, critical thinking, and conscientiousness—no clear consensus has yet emerged on the full set of competencies students need to prepare for careers. The following additional competencies appeared on at least six of the twelve frameworks analyzed: positive attitude, self-regulation, communication, research/learning skills, and technology skills.

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Ideally, stakeholders consider which competencies best predict college and workforce success when selecting which to include in a college and career readiness framework. However, research is limited on many of the key intrapersonal and interpersonal competencies under consideration.[viii] While the research field catches up, workshop participants suggested that stakeholders may benefit from using the subset of competencies that appear across frameworks as a starting place and then seeking input from local industry representatives and other key stakeholders.

Once researchers and stakeholders have articulated their definition of career readiness, they can identify ways to measure program and student progress towards achieving these important skills. Current research suggests that different types of competencies are best measured with different measurement tools: individuals' self-awareness or mindsets are best measured via self-report surveys or interviews, whereas skills (whether they be intrapersonal, interpersonal, or cognitive) are best measured via performance-based assessments or teacher surveys.[ix] During the workshop, career-readiness expert David Conley reiterated the importance of using multiple measures for assessing career readiness and argued that the field needs to get better at assessing students' ability to transfer skills to new contexts such as projects and work-based learning experiences.[x]

Implementing multiple instruments is resource-intensive, however, and requires a strategy for compiling an efficient but comprehensive suite of measures. Researchers could help the field by assisting with this process. Finally, in selecting measurement tools, it is critical to consider whether they are valid for their intended purpose (e.g., formative feedback, program evaluation, accountability; see literature scan for a more in-depth discussion of this topic).

REL Project Spotlight

REL Mid-Atlantic: Research-Based Instruments for Measuring Students' Soft Skills

In response to the growing focus on "soft skills" in career readiness, REL Mid-Atlantic is helping educators better understand and assess students' soft skill development. Drawing from a list of soft skills developed by the RAND Corporation and the Compendium for Academic, Social, and Emotional Learning (CASEL), REL Mid-Atlantic developed a Fact Sheet that compiles an illustrative list of instruments with evidence of effectiveness for use in assessing soft skills in middle and high school students. The Fact Sheet is designed to offer useful information and to illustrate the use of the two major online sources of information. REL Mid-Atlantic offers coaching on the use of the Fact Sheet as well as the websites.

REL Project Spotlight (Continued)

REL Central: Measuring Civic Readiness: A Review of Instruments

As state education agencies reform their accountability systems, interest in identifying instruments to measure civic readiness has grown. In response to this interest, REL Central is identifying and reviewing instruments measuring civic readiness. REL Central will summarize the content and format of the instruments as well as the associated evidence of the reliability and validity of the instruments. SEAs and LEAs will be able to use the report generated by this study to identify, compare, and contrast multiple civic readiness instruments. Such a comparison will help these agencies make informed decisions about which instruments to incorporate into their accountability systems.

REL Northeast and Islands: A Review of Instruments for Measuring Social and Emotional Learning Skills Among Secondary School Students

In collaboration with Champlain Valley School District, REL Northeast and Islands developed a resource to help state and local education agencies identify reliable and valid instruments to measure collaboration, perseverance, and self-regulated learning among secondary school students. The resource describes 16 instruments and presents available information on each instrument's reliability and validity. A worksheet is included to help schools and districts select instruments that align with their needs. Further, the resource offers suggestions for instrument developers to support practitioner needs.

Additional practical resources

Participants shared the following practical resources during the workshop and through activities leading up to it. They may be useful for educators and researchers grappling with how to define and measure the competencies associated with career readiness.

Are You Ready to Assess Social and Emotional Development? Tools Index (2015): Provides information on instruments for measuring social and emotional knowledge, attitudes, and skills; includes respondent type, primary constructs, item format and length, cost, grade level, and settings for use. Available from: https://files.eric.ed.gov/fulltext/ED577551.pdf

Employability Skills Framework (2013) and Professional Learning Module (2019): The Office of Career, Technical, and Adult Education, U.S. Department of Education, developed a unifying framework for employability skills that cuts across workforce development and education sectors. The College and Career Readiness Success Center developed a professional learning module, Integrating Employability Skills: A Framework for All Educators, to support regional comprehensive centers, state educational

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agency staff, and state regional centers in building their knowledge and capacity to integrate and prioritize employability skills at the state and local levels.

Framework available from: https://s3.amazonaws.com/PCRN/docs/Employability_Skills_Framework_OnePager_20180212.pdf

Professional learning module available from: https://ccrscenter.org/technical-assistance-networks/professional-learning-modules/integrating-employability-skills

Exploring SEL (2019): A website developed by the Ecological Approaches to Social Emotional Learning (EASEL) Laboratory at the Harvard Graduate School of Education, Explore SEL provides interactive tools and resources that support exploring, connecting, and comparing SEL and non-academic frameworks and skills to build a broader and deeper understanding of SEL and related fields and to enable users to select a framework to guide their SEL work. Available from: http://exploresel.gse.harvard.edu/

Illinois College and Career Pathways Endorsements (CCPEs) Essential Employability Competencies (2017): Outlines competencies students need to succeed in eight industry sector areas, as well as a multidisciplinary skills option. Under the Illinois Postsecondary and Workforce Readiness (PWR) Act, school districts can award endorsements to students to high school graduates based on their achievement in these areas, signifying their readiness to pursue postsecondary education or a career related to that industry area. Available from: https://jfforg-prod-prime.s3.amazonaws.com/media/documents/PWR_Report_4-16-19.pdf

Kansans Can Competency Framework (2018). A partnership between the Kansas State Department of Education and developers Dr. Pattie Noonan and Dr. Amy Gaumer Erickson, supports educators in systematically embedding intrapersonal and interpersonal competencies into course content. The Framework includes a multi-year professional development process, fidelity tools, foundational lessons, instructional resources, and formative assessment. Available from: https://ksdetasn.s3.amazonaws.com/uploads/resource/upload/2024/2018_KansansCanCompetency_report_060318.pdf

Measuring Skills and Dispositions: Existing Assessment Review (2014): Includes a summary of existing assessments that measure skills that constitute David Conley's Four Keys to College and Career Readiness Framework, with information on primary constructs, administrative ease, implementation, feasibility, cost, and technical evidence. Available from: https://www.erblearn.org/sites/default/files/images/services/Education%20Articles/A-New-Era-for-Educational-Assessment-092414_DavidConley_20141021.pdf

RAND Education Assessment Finder (2018): A web-based tool that allows users to identify assessments for measuring interpersonal, intrapersonal, and higher-order cognitive competencies. Includes information for a variety of assessment types, including respondent type, method of administration, item format and length, primary constructs, cost, grade level, and evidence of technical quality. Available from: https://www.rand.org/education-and-labor/projects/assessments.html

Social and Emotional Learning Assessment Guide (2018): An online tool to help practitioners select and use currently available assessments for measuring social and emotional competencies. Available from: http://measuringsel.casel.org/assessment-guide/

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Aligning education programs to the future of work

To prepare students for the realities of the future world of work, workshop participants discussed the importance of educators and policymakers understanding their regional labor markets, including which careers are projected to be in demand and what secondary and postsecondary education credentials they require. Workshop participants also discussed the ways in which a solely regional focus can limit opportunities for students, particularly those living in areas with weak or narrow economies. Armed with an understanding of both regional and national labor market trends, educators can make informed decisions about their portfolio of programs that balance the reality that many students will remain close to their hometowns with the imperative to open as many doors for students as possible.

To take informed action, participants discussed the importance of state and district leaders in K-12 understanding the alignment between their education programs and the projected employment opportunities in their region and beyond, and for those jobs requiring postsecondary credentials, articulating the postsecondary pathways needed for success. Participants discussed how local communities can use this information to establish and continuously improve programs, improving alignment with regional and national employment opportunities.

Workshop participants also discussed the importance of understanding whether employers value the preparation that secondary students are receiving. To signal that graduates are prepared for a particular career or have a certain skill set, K-12 pathways and CTE programs are increasingly offering industry credentials (i.e., certificates, licenses).[xi] In 2017, 26 states included industry-recognized credentials as a component of their reporting or accountability systems for high school.[xii] Given this increased emphasis in state accountability systems, it is critical to identify which credentials are valued by employers. Otherwise, states risk incentivizing the pursuit of low-value credentials that do not lead to good jobs.[xiii]

Common challenges

During the workshop, participants discussed challenges related to both calculating alignment and assessing the value of industry credentials.

Calculating alignment. Educators and researchers recognize the need for stronger alignment between secondary education, postsecondary education, and regional labor markets; however, the data required to understand both supply and demand sides of the equation are complex, and workshop participants noted that many regions lack one or more pieces of the puzzle.

Calculating alignment requires data on both the supply and demand side of the equation:

- **K-12:** Program-level data on the career-themed pathways and career and technical education (CTE) programs of study offered, which industries/careers they prepare students for, and how many graduates they prepare each year.

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- **Labor market:** Number of projected job openings and their educational requirements by region. For this information practitioners can turn to their state labor market information (LMI) office. For the LMI office in your state, see: https://www.bls.gov/bls/ofolist.htm.

- **Postsecondary:** Availability of articulated postsecondary pathways for jobs requiring postsecondary education.

Industry credentials: Students need accurate information on the value of industry credentials so they can make informed decisions. While there are thousands of CTE credentials available in the United States that students can earn, recent research estimates that employers demand only 19 percent of credentials students earn in grades K–12.[xiv] State education, economic development, and industry leaders can help by working together to identify a curated list of high-value credentials that takes into account employer demand and transferability of credits to postsecondary institutions.[xv] It is also important for states to monitor credential attainment so they can ensure equitable access to earning high-value credentials. Currently, only 28 states collect data on students' credential attainment, limiting their ability to understand which credentials are being earned and by whom.[xvi]

REL Project Spotlight

REL Appalachia: Assessment of the Alignment between West Virginia's High School Career and Technical Education Programs and the Labor Market

To support West Virginia's goal of streamlining career and technical education (CTE) programs to meet regional labor market needs, REL Appalachia is assessing the alignment of the state's offerings to local labor markets. By quantifying this alignment, REL Appalachia is strengthening the West Virginia Department of Education's access to data to inform decisions that maximize the effectiveness of CTE pathways. This study provides a set of regional CTE program-to-occupation alignment statistics that quantify the extent to which high-demand occupations have at least one aligned high school CTE program and the extent to which high school CTE program offerings align to high-demand occupations in each region of the state. The study also provides information on state and national alignment by calculating the extent to which high school CTE program offerings align to high-demand occupations in other regions of the state or to national high-demand occupations.

REL Appalachia: Trends in Virginia High School Career and Technical Education (CTE) Credential Attainment and Postsecondary Enrollment Outcomes

REL Appalachia is currently conducting a set of studies that examine a new Virginia policy that requires high school graduates to have earned one or more CTE credentials. This policy has the potential to strengthen students' preparation for careers and entry into the labor market. By measuring students' credential attainment and postsecondary enrollment outcomes during this policy change, REL Appalachia and Virginia stakeholders hope to understand the types of credentials various student subgroups are earning and whether earning these CTE credentials is correlated with increased college enrollment.

REL Project Spotlight (Continued)

REL Central: Review of Career and Technical Education in Two States

REL Central is partnering with state education agency (SEA) leaders in Kansas, Nebraska, and South Dakota to examine the relationships between high school CTE course-taking and both secondary and postsecondary (college and career) outcomes. REL Central is working with the SEA leaders to identify existing data that could be used to examine these relationships, and to determine whether the necessary data can be linked between relevant state entities (such as departments of higher education). This project involves three primary activities: conducting a review of research that examines student outcomes associated with CTE course-taking; creating an inventory of existing data that may be used to address the research questions; and developing a research plan to use available data to examine the relationships between CTE course-taking and both secondary and postsecondary outcomes.

REL Midwest: The Postsecondary Pathways of Minnesota Public High School Graduates: Investigating Opportunity Gaps

The REL Midwest Career Readiness Research Alliance (MCRRA), a partnership that brings together practitioners, policymakers, and researchers to conduct research and promote its use in state and local decisionmaking, recently studied the postsecondary pathways of its K–12 graduates of different subgroups. The study found that within one year of high school graduation, nearly all Minnesota public high school graduates were enrolled in college or employed, but that unemployment and lack of postsecondary enrollment disproportionately affected graduates with disabilities or limited English proficiency as well as graduates who were Hispanic or American Indian/Alaska Native. Similar trends were found in college certificate and degree attainment, and earnings. The results of this study suggest that high schools might consider expanding access to college-readiness opportunities for students from diverse backgrounds; targeting resources to students who are the most at risk during the transition to postsecondary education and employment; and sharing information with students about the earnings of past cohorts of students and how they differed across postsecondary pathways.

REL Pacific: Defining and Implementing Career-Relevant Educational Content in Communities with High Levels of Out-Migration

REL Pacific is partnering with stakeholders in Yap State, Federated States of Micronesia, to create a coherent system of career supports for transitioning students to college and career. Because of Yap's geographic isolation, students' career options are extremely limited; moreover, students and educators often lack information about local employment needs and opportunities. In response to these unique needs, REL Pacific is undertaking a multifaceted approach to improving college- and career-readiness supports across Yap. By collecting local employment data and supporting the development of a data infrastructure, REL Pacific is helping stakeholders better identify available career paths and local employment needs. Looking forward, REL Pacific plans to work with stakeholders to use this information to repurpose existing career-readiness programming and to create programming where needed, with the goal of establishing a system that will effectively support students in transitioning from high school to college or career.

REL Project Spotlight (Continued)

REL Southwest: Postsecondary Outcomes for Students in High School Career and Technical Education Programs in Central Texas

To support students in achieving a successful pathway after high school, leaders in a school district in central Texas want to align CTE programs with regional workforce needs and to ensure that programs of study culminate in the attainment of a recognized postsecondary credential. This study will investigate the extent to which CTE programs of study and CTE graduates align with high-wage, fast-growth industry sectors in the Central Texas region. The study will also provide evidence on CTE graduates' postsecondary outcomes—college enrollment, college attainment, workforce entry, and wages. Finally, the study will conduct analyses of student subpopulations and malleable program factors (such as CTE career clusters and certification attainment) that may be related to outcomes.

REL West: Strengthening Cross-Sector Data Infrastructure in Rural California Career Pathways Consortia

REL West is currently supporting three rural cross-sector consortia funded by the California Career Pathways Trust (CCPT) initiative, a state-level program to expand partnerships among K–12, postsecondary, and workforce stakeholders. The purpose of these consortia is to create locally relevant and high-demand career pathways, thereby improving educational attainment and driving regional economic development. To support the consortia in implementing data-driven processes for measuring internal efficacy, REL West will in the next year focus on developing the capacity of regional leads to use evidence-based processes and tools and develop data action plans, as well as strengthening the ability of all the consortia to leverage the unique opportunities that exist in rural regions to maximize and scale impact.

Additional practical resources

Participants shared the following practical resources during the workshop and through activities leading up to it. They may be useful for educators and researchers grappling with how to better align educational programs to the future of work.

Credential Currency: How States Can Identify and Promote Credentials of Value (2018). A report from Education Strategy Group, Advance CTE, and Council of Chief State School Officers, Credential Currency provides a roadmap for states to identify credentials that have labor market value and approaches that improve credential attainment and reporting. The report covers common barriers, recommended strategies, and opportunities to advance learner attainment of industry-recognized credentials with marketplace value. Available from: https://ccsso.org/resource-library/credential-currency-how-states-can-identify-and-promote-credentials-value

Credentials Matter (2019). A collaborative analysis between ExcelinEd and Burning Glass Technologies that examines how the credentials students earn align with real-world employer demand. This project includes an online tool that allows users to explore by state, career cluster, or credential to discover how the credentials students earn align with workforce demand in each state. Available from: https://www.excelined. org/credentials-matter/

Designing a Career Pathways System: A Framework for State Education Agencies (2016). A webinar and accompanying facilitator's guide which serve as tools to support state-level stakeholders in analyzing labor market data, identifying key knowledge and skills by industry, interpreting systems data, and using this information to develop a career pathways framework. Available from: https://ccrscenter.org/ implementation-tools/career-pathways-modules

ExcelInEd CTE Playbook Series & Perkins V Brief (2017-2018). A series of "playbooks" that provide states with guidance on how to utilize the flexibility in accountability requirements outlined in Perkins V to ensure their CTE programs are effectively preparing students for success. Topics include: putting CTE to work for students, building cross-sector partnerships, auditing a state CTE program for quality, maximizing the impact of CTE funding, and aligning CTE programming with industry needs and priorities. Available from: https://www.excelined.org/cte-playbook-series/

O*Net Online. Sponsored by the U.S. Department of Labor, Employment & Training Administration, the O*NET database contains hundreds of standardized and occupation-specific descriptors on almost 1,000 occupations covering the entire U.S. economy. The database is continually updated with input from a broad range of workers in each occupation. Available from: https://www.onetonline.org/

State Workforce and Education Alignment Project (SWEAP). An initiative of National Skills Coalition, SWEAP demonstrates how state policy leaders can use system-wide information about workforce education and training programs to better align programs with each other and with employers' skill needs. SWEAP is helping states develop three types of data tools: dashboards, pathway evaluators, and supply and demand reports. Available from: https://www.nationalskillscoalition.org/state-policy/state-workforce-and-education-alignment-project

Workforce Data Quality Campaign (WDQC). An initiative of the National Skills Coalition, WDQC recently conducted a survey of all 50 states to understand whether states are collecting individual-level data about non-degree credentials, incorporating these data into their Statewide Longitudinal Data Systems, evaluating attainment by subpopulation, and identifying credentials of value. WDQC has also published a guide for states with step-by-step instructions for measuring non-degree credentials using student-level administrative data. Both survey and guide are available from: https://www.nationalskillscoalition.org/ national-initiatives/workforce-data-quality-campaign

Cultivating career awareness and planning earlier in students' academic careers

Workshop participants agreed that educators and researchers across the states no longer view career exploration as an activity primarily for high school seniors or career and technical education students. Instead they increasingly see career exploration as an important tool that can be introduced as early as elementary or middle school to engage parents and students, inform course selection, and guide work-based learning experiences. Educators are developing programs that follow a common arc: In elementary school, students engage in self-exploration activities and build their career awareness; in middle school, students engage in career exploration by reflecting on their career interests and learning about a range of career options; when high school begins, students identify their interests and engage in career preparation through specific course- and work-based experiences; in each subsequent year of high school, students reflect on previous experiences and update plans for both school- and work-based learning.[xvii]

REL Southeast has identified broad evidence-based strategies for effective career counseling programs, including:

- Providing students with career-planning information (e.g., future employment expectations).
- Creating collaborative opportunities for teachers, families, and counselors/administrators to discuss career options.
- Increasing access to career-counseling interventions and academic advising.
- Spotlighting the career relevance of content students are learning in their courses.
- Encouraging students to participate in career days and work-related experiences (e.g., role-playing, job shadowing).

With Scott Solberg's facilitation, meeting participants discussed specific approaches to supporting students' career awareness and planning that enable students to take these records with them as they transfer across schools, including preparation of an online portfolio or Individualized Learning Plan (ILP; also known as Education and Career Action Plan or Individual Career and Academic Plan). An ILP is ideally both a document and a process—a document tracking a student's course taking and postsecondary plans aligned to career goals and the competencies the student has mastered; and a process that enhances the relevance of school and out-of-school learning opportunities and provides the student access to career development opportunities that incorporate self-exploration, career exploration, and career planning and management skills.[xviii] Currently, 33 states require all high school students to have an ILP and another ten states encourage ILPs by mentioning them in their strategic plans, but don't currently require them for students.[xix]

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Common challenges

Workshop participants discussed how the research base identifies high-level strategies for effective career counseling and promising approaches for systematizing the career awareness and planning process, such as ILPs, but research on specific policy and program implementation is limited. Part of the challenge is that, although many states mandate some version of ILPs or career plans, the quality of implementation ranges dramatically from a "check-the-box" exercise to a rich, multifaceted tool for guiding and tracking students' plans for education and work. To better understand implementation, career-readiness expert Scott Solberg recommends researchers track the level of career-planning support that educators provide to students and their parents and students' perceptions that activities are relevant and meaningful.[xx] He also recommends that school counselors and other practitioners gather formative data about how students construct learning objectives through the ILP process and develop a rating system of students' ILPs. Workshop participants also noted that the online platforms housing such plans offer a potential resource for data mining to identify trends, patterns, and outcomes.

REL Project Spotlight

REL Northwest: Middle School Career and Technical Education: A Training for State Leaders on Gathering Stakeholder Feedback for Design Purposes

In partnership with Idaho Career and Technical Education (ICTE), REL Northwest has worked to expand career development options for middle school students. By participating in a sequence of high-quality career development activities in grades 7 and 8, students will better understand their career options and the skills needed to secure employment. Most recently, REL Northwest and ICTE have collaborated to train state staff to launch a pilot project to inform a statewide launch of this initiative. Looking to 2020 and beyond, ICTE will oversee the statewide rollout of early career development services and provide supporting resources such as optional standards and a curricular toolbox. REL Northwest anticipates supporting the state in laying groundwork for a rigorous longitudinal outcome evaluation.

REL Southeast: Florida Career Readiness Research Alliance

Through its work on the Florida Career Readiness Research Alliance, REL Southeast is working to develop a self-study guide that state and local education agencies can use to assess the implementation of career-readiness practices. This guide will cover numerous areas found to be critical to effective career counseling, based on a comprehensive literature review and interviews with key stakeholders. The guide will provide step-by-step supports for educators to evaluate their own efforts, including rating scales, instructions for data collection, and guiding questions. The guide is designed for use by teachers, administrators, and counselors.

REL Project Spotlight (Continued)

REL West: Arizona Partnership for Education and Career Success

In partnership with the Arizona Partnership for Education and Career Success (APECS), REL West is working to improve comprehensive career planning from grades 9 through 12. Arizona's Education and Career Action Plan (ECAP) policy requires that all students, starting in grade 9, maintain portfolios of coursework, career aspirations, and extended learning opportunities. These portfolios are hypothesized to ease transitions between high school and postsecondary opportunities, thereby improving early success in college and career.

REL West has been supporting this work on multiple fronts. First, it analyzed the impact of the ECAP requirement in a sample of high schools and compiled findings into profiles which the Arizona Department of Education will use to support program planning. Second, it is partnering with Flagstaff High School to better align and integrate ECAP implementation with a broader college- and career-readiness strategy. Finally, REL West is conducting a longitudinal study to examine the impact of career-planning activities on college-going behaviors.

Additional practical resources

Participants shared the following practical resources during the workshop and through activities leading up to it. They may be useful for educators and researchers grappling with how to implement strong systems for career exploration and planning.

Career Exploration in Middle School: Setting Students on the Path to Success. Produced by the Association for Career and Technical Education and Career Cruising, this brief discusses the benefits of career exploration and ways to implement and improve school programs. Available from: https://files.eric.ed.gov/fulltext/ED596321.pdf

Nebraska Career Development Toolkit. The Nebraska toolkit includes a searchable collection of lesson plans categorized by grade as well as resources for self-awareness, career exploration, and career planning and management. Available from https://www.education.ne.gov/nce/careerdevelopment/

Next Steps Idaho. A suite of career readiness and exploration resources for students, families, and educators. Student activities are broken out by grade level from eight through twelfth grades. Available from: https://careerinfo.nextsteps.idaho.gov/

Promoting Quality Individualized Learning Plans Throughout the Lifespan: A Revised and Updated "ILP How to Guide 2.0" (2018). Provides career development resources and examples of ILP implementation for a range of age groups and settings, including elementary and secondary school, postsecondary education, workforce development programs, and other non-school settings. It also offers strategies for building and supporting capacity at the local level to facilitate adoption of the ILP process and provides examples of how to ensure that ILPs are implemented with quality. Available from: https://files.eric.ed.gov/fulltext/ED594125.pdf

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Partnering with employers to provide quality work-based learning experiences

Emphasis is increasing nationally on providing students with work-based learning experiences.[xxi] According to the National Center for Innovation in Career Technical and Education, comprehensive work-based learning programs contain three key components: the alignment of classroom and workplace learning; application of academic, technical, and employability skills in a work setting; and support from classroom or workplace mentors.[xxii] State work-based learning definitions vary, but programs typically include a range of activities that become more intensive as students progress through the continuum from career awareness (e.g., guest speakers, workplace tours, career fairs), to career exploration (e.g., job shadows, informational interviews), career preparation (e.g., internships, practicums, student-run enterprise), and career training (e.g., apprenticeships, clinical experience, on-the-job training).[xxiii]

During the workshop, career readiness expert, Amy Loyd, described how work-based learning experiences provide students with opportunities to apply academic and technical skills, develop key competencies, discover career options, become aware of postsecondary education and training needs, and build their referral network. By providing students with early exposure to careers of interest, work-based learning experiences can help guide students towards careers they are legitimately interested in and prevent them from wasting time and money working towards a career they are not well suited for.

Common challenges

During discussion, workshop participants identified two challenges related to work-based learning that were common across the states: increasing access to work-based learning opportunities and measuring student learning during work-based learning experiences. Increasing access to work-based learning is a particular challenge for students in rural or remote areas that may have fewer local employers to partner with and greater distances separating students from employers. These challenges contribute to significantly fewer work-based learning opportunities offered in rural communities.[xxiv] In these cases, workshop participants discussed the potential for offering virtual or simulated work-based learning experiences. Geographic Information Systems (GIS) software can also be used to create work-based learning maps that can help state education leaders understand how work-based learning resources and services are distributed across their state.[xxv] Access to work-based learning—particularly the more advanced opportunities such as internships and apprenticeships—can also be challenging for low-income students, who may lack transportation and appropriate workplace attire or may have obligations to look after younger family members or take a paying job instead of an unpaid internship.[xxvi] School districts can overcome some of these barriers by offering transportation and internship stipends, but this requires additional resources.[xxvii]

Workshop participants also discussed how measuring student learning during work-based learning experiences is an ongoing challenge. Ideally, educators could measure the technical skills and career readiness

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competencies students develop during work-based learning experiences. These measures of student learning can inform student reflections and career planning and also help states, districts, and schools improve the quality of work-based learning programs.[xxviii] However, collecting valid and reliable measures across a range of work-place settings poses unique challenges. Researchers are identifying and sharing the tools that states and districts use to measure learning from these experiences, including: portfolios, employer evaluations, rubrics to measure student learning, self-assessment surveys, and worklogs.[xxix] Because these tools differ in purpose and use, it is important for states and districts to first describe their expectations or standards for high-quality work-based learning experiences and then consider context-specific factors when selecting a tool to measure work-based learning experiences, such as what competencies they want to measure, who is doing the measurement, and their audience.[xxx] Some states and districts include endorsements or badges on students' diplomas to recognize a high school graduate's work-based learning experiences.[xxxi]

REL Project Spotlight

REL Central: Delivering Work-Based Learning in Rural Schools Webinar

REL Central organized a webinar, in partnership with REL Northwest, that provides an overview of research on work-based learning, challenges to work-based learning implementation, and research-based frameworks for work-based learning development and implementation. Representatives from two rural districts, identified as successfully implementing work-based learning programs, describe the components of their programs and the opportunities they provide to students.

REL Northeast & Islands: Rhode Island Pipelines to College and Career Partnership

Through the Rhode Island Pipelines to College and Career Research Partnership and a partnership with the Rhode Island Governor's Workforce Board, REL Northeast & Islands is working to support the launch of PrepareRI, a statewide initiative to support career readiness. Work-based learning is a key aspect of PrepareRI, providing students with both summer internship and youth apprenticeship opportunities. REL Northeast & Islands is supporting these efforts by working with stakeholders to review and expand PrepareRI's data-tracking processes, therefore enabling them to better measure progress towards the initiatives' goals.

Additional practical Resources

Participants identified the following practical resources during the workshop and through activities leading up to it. They may be useful for educators and researchers grappling with how to partner with employers and provide quality work-based learning experiences.

Illinois Postsecondary and Workforce Readiness (PWR) Act. Illinois is at the forefront of integrating work-based learning into the state education system. The PWR Act sets grade-level benchmarks for an array of

work-related activities, setting up a framework for tracking student progress in individualized career plans, career-focused coursework, professional learning activities, and academics. State information is available from: http://www.advanceillinois.org/pwr/

North Carolina Work-Based Learning Toolkit and Business Engagement Guide. The Work-Based Learning Toolkit defines nine types of WBL activities, as well as roles and responsibilities for students, parents, mentors, and school administrators participating in WBL programs. It also provides guidance on WBL program start-up and state policies and labor laws. The Business Engagement Guide is designed to assist CTE Directors with developing partnerships and advisory councils to engage business and industry in providing work-based learning opportunities. Available from: http://www.dpi.state.nc.us/cte/work-based/

State Work-Based Learning Initiative. The College and Career Readiness and Success (CCRS) Center launched the State Work-Based Learning (WBL) Initiative. This initiative is organized around four state-led, peer-to-peer networks that focus on specific WBL priorities, promote cross-state learning, and engage external WBL experts. The peer network focus areas are measuring high-quality work-based learning and alignment with Perkins V, work-based learning implementation and scale-up, state-led topical conversations, and using Geographic Information System (GIS) mapping to inform place-based decision making. Available from: https://ccrscenter.org/state-work-based-learning-initiative

Tennessee Department of Education Work-Based Learning Implementation Guide (2016). This guide describes the Tennessee state framework for providing quality WBL programs and offers guidance for preparing for, implementing, and assessing WBL experiences. It links directly to the state's WBL Toolbox. Available from: https://www.tn.gov/content/dam/tn/education/ccte/wbl/wbl_implementation_guide.pdf

Work-Based Learning Framework. A framework developed by JFF for understanding work-based learning as a continuum of lifelong learning and skill development, beginning with exploration and progressing through exposure, engagement, and experience. Available from: https://www.jff.org/resources/work-based-learning-framework/

Work-Based Learning Manual (2018). A how-to guide for work-based learning that includes an introduction to work-based learning as well as chapters on eight of the most common types of work-based learning experiences: guest speakers, workplace tours, college and career fairs, informational interviews, job shadows, internships, teacher workplace tours, and teacher externships. Available from: https://wbl.fhi360.org/

Work-Based Learning Measures Series (2019). Created by the College and Career Readiness Success Center, the series includes five modules: Selecting Appropriate Measures, Developing Portfolios, Designing Rubrics, Constructing Employer Feedback and Evaluation, and Creating Student Self-Assessments. Available from: https://ccrscenter.org/technical-assistance-networks/professional-learning-modules/work-based-learning-measures-series

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