RESEARCH AND EVIDENCE: WORKFORCE-CENTERED STRATEGIES

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About the Project

This research summary pairs with a series of policy briefs that highlight various postsecondary completion strategies across the WICHE region. These reviews provide a brief overview of the research on the various strategies, policies, and initiatives identified in the landscape analysis of state strategic plans. Each research summary serves as the research context partner to the accompanying policy brief. Further details on the findings of this analysis, including the policy briefs on student success, workforce alignment, academic success, and coordinated collaboration strategies, and an interactive online resource displaying state-level strategies, are available at wiche.edu/policy-research/completion. This work was generously funded by ECMC Foundation.

A key theme from the landscape analysis of state higher education strategic plans was an increasing focus on aligning higher education with workforce development. Across the region, states are prioritizing strategies that support these efforts, including expanding access to work-based learning and short-term credentials and investing in workforce alignment (see this edition of *WICHE Insights*, which highlights state efforts in these areas).[1] Collectively, states identified these workforce-centered strategies as supporting career-connected learning and improving alignment with state industry and workforce needs. This research summary provides an overview of the research and evidence on the key workforce-centered strategies states are prioritizing. While there is some research on specific strategies, there is a gap in understanding how states develop and implement statewide workforce alignment strategies to support student success. As these strategies are gaining prevalence and scale across the region, it is important that states identify gaps in evidence and research and enhance data capabilities and collaborations at the state level to ensure that these strategies are not only

increasing in number but also improving student success and supporting higher education's ability to adapt to workforce and industry needs.

Workforce Alignment

There has been a pronounced shift toward workforce alignment investments as a strategic priority, with federal and state governments and institutions increasingly emphasizing direct connections between educational programming and labor market demands. This shift has led some states to conduct systematic reviews of academic offerings, including analyses on calculated return on investment, graduate earnings, and integrated career services and degree planning, to ensure that programs deliver measurable labor-market value.[2] These efforts align with WICHE's landscape analysis of completion strategies in the West, as states across the region are pursuing initiatives to align higher education and workforce development, both through direct state financial investments and state-level coordination. The Wyoming Innovation Partnership and Future Ready Oregon are two examples of state investments in developing new programs and training that directly align with high-need workforce areas and encourage stronger partnerships between the workforce and higher education.[3] In other states, efforts to align higher education and the workforce are more systematic; for example, in December 2025, Governor Polis proposed merging workforce and higher education into a new state agency, the Colorado Department of Higher Education and Workforce Development.[4]

Efforts to better align higher education and workforce development are not unique to the West. One example from outside the region is recent research conducted by the State Council of Higher Education for Virginia (SCHEV), which used interviews with stakeholders from other states to better understand how to align higher education and the workforce. A key finding of the SCHEV report was that stakeholders consistently identify a critical gap: while pockets of good alignment exist, most states lack coordinated infrastructure connecting labor supply and demand data with educational programming, resulting in misaligned initiatives and persistent information silos.[5] The SHCEV report emphasizes that improving alignment requires systematic structural improvements, such as data systems, technology modernization, and sustainable funding mechanisms, to support career-connected learning, and this work requires broad stakeholder buy-in across diverse participants and leveraging existing initiatives rather than creating entirely new structures.[6]

The alignment of higher education and workforce development is not a new concept, but there appears to be momentum among states to prioritize this work, creating career-connected learning for students and ensuring that higher education meets state workforce needs.[7] That said, there is a gap in research and understanding of how these efforts support student outcomes and state efforts more broadly. One area for future consideration for states is to develop a parallel research agenda for this work that leverages shared data

systems, coordinated state planning, and formalized industry-education feedback loops, moving workforce alignment beyond isolated pilot programs toward institutionalized, data-driven systems that continuously adapt to evolving labor market needs.

Work-Based Learning

Work-based learning, including internships, apprenticeships, and experiential learning, has gained prominence as a response to employers' concerns about graduates' lack of practical workplace experience, serving as a key strategy to bridge academic learning and industry practice while enhancing graduate employability.[8] Work-based learning was among the most commonly identified strategies in WICHE's landscape analysis of state strategic plans. In some instances, states cited work-based learning as a strategy to support career-connected learning for students and improve engagement with workforce partners. Additionally, in some states, work-based learning was identified as a vehicle to support affordability efforts, as these strategies allow students to "earn and learn".

INTERNSHIPS

Internships in postsecondary education are associated with positive labor market outcomes; however, significant gaps in access and participation persist, and states must consider these when expanding such opportunities. While over 70% of first-year students expect to participate in internships, only 10 to 25% of bachelor's degree holders actually do, with Black and Latino students, women, low-income, and first-generation students experiencing disproportionately less access.[9] Additionally, research demonstrates that internship design and programming affect students' post-graduation outcomes. For example, internships that include interventions such as structured mentorships and accessible open-source software have shown promise in supporting underserved populations, with one program achieving a 75% placement rate in tech roles and over 90% of participants reporting confidence in their professional transition.[10] Internships are also essential for helping institutions meet students' needs by keeping pace with cutting-edge job skills, equipment, and job-market contacts. This can particularly benefit students at community colleges and Tribal Colleges and Universities.[11]

Research and literature on internships primarily focus on programmatic outcomes and pedagogical changes at the course or program level, with limited research examining how a statewide approach to internship learning can support student success and workforce development at scale. This is an area for future research to explore how a statewide approach to internship design and development supports student success and workforce development efforts.

APPRENTICESHIPS

Apprenticeships, much like internships, were another highlighted strategy that states identified to support career-connected learning and workforce development. This is

unsurprising, as registered apprenticeships have experienced significant growth in recent years, and research indicates that they benefit both apprentices and employers.[12] There has also been an increasing role of community colleges as partners in apprenticeship programs.[13] Given the existing infrastructure for apprenticeships, supported by federal and state funding for registered apprenticeship programs, it is important that the higher education community work in partnership with these programs to advance this work at the state level and to use evidence-based practices in the design and implementation of apprenticeships.[14]

Research on apprenticeship programs emphasizes that effective programs require intentional structural design rather than simply placing students in workplace settings without adequate support systems.[15] There are several aspects of apprenticeships that should be considered, as research identifies the quality of workplace job resources, including learning opportunities, social relations, and appropriate levels of job control, as essential for apprentice satisfaction and development, with learning opportunities particularly important for facilitating relationship building and feedback mechanisms.[16] This research highlights that successful apprenticeship programs must address not only curriculum design and employer partnerships, but also workplace culture, social integration, career alignment, and the balance between responsibility and support to prevent dropouts and ensure apprentices can complete their training and obtain qualifications.[17]

In many instances, apprenticeships operate completely outside colleges, but consideration should be given to the partnerships and collaborations required when integrating apprenticeships into higher education. Research on the integration of apprenticeships into higher education curricula has found that successful programs are characterized by strong collaborative partnerships between university providers and employers, requiring clarity regarding work-based learning expectations, value propositions, ownership responsibilities, and senior management commitment.[18] This is underscored by case studies of a statewide apprenticeship programs in Idaho and Montana, which highlighted the importance of collaborative leadership among education, workforce, and employers in this work.[19]

Apprenticeships have the potential to be a vehicle for supporting students' access to high-demand, career-ready fields, but it is critical that apprenticeships are intentionally designed to best support apprentices and employers. There are also potential gaps in partnerships and collaboration at the state level, for example, fragmented data systems, that should be addressed as education and workforce partners work together to expand apprenticeship opportunities.[20]

Short-term and Stackable Credentials

The landscape of short-term credentials has experienced remarkable growth over recent decades. Colleges and universities award more than one million undergraduate certificates

annually, representing approximately a quarter of all undergraduate postsecondary credentials in the United States.[21] The fastest growing segment consists of certificates requiring less than one year to complete, with such awards increasing by roughly 60% over the past two decades: a growth rate that surpasses all other types of undergraduate credentials.[22] The growing relevance of short-term credentials was one of the key findings of WICHE's landscape analysis of completion strategies in the West, as stakeholder from across the region identified the important role of short-term credentials in how their states were approaching workforce-centered strategies.

Short-term credentials—micro-credentials, digital badges, and short-term certificates—are defined as postsecondary credentials that require less than one year of study.[23] The increase in the availability of short-term credentials has been driven by workforce demand, public demand for worker upskilling, and the growth of performance-based funding.[24] Research has largely focused on the return on investment for students, specifically on wages earned upon completion of a short-term credential.[25] Research into these programs, including analyses of state-level initiatives in Texas and Virginia, suggests that the impact of short-term credentials on wage outcomes varies significantly across job fields, with some fields showing little to no wage gains and others generating significant positive returns.[26]

Studies have found that very short-term certificates, requiring six or fewer credits, yield labor market returns comparable to those of longer short-term certificates in the first few years after completion, though these benefits tend to fade within a few quarters.[27]

Stackable credentials are short- and medium-term credentials that can be stacked to result in an associate or baccalaureate degree.[28] Credential stacking may offer a promising pathway for sustained economic mobility. Research demonstrates that working adults who stack credentials experience significant labor market benefits like increased employment and wages.[29] Returns are substantially larger for individuals studying in health-related fields and for those who return to college after initially completing a short-term certificate, suggesting that while short-term credentials provide quick employment entry, their long-term value requires strategic sequencing through credential stacking.[30]

Short-term credentials have emerged as a significant force in postsecondary education, yet their value proposition remains contingent on strategic design and implementation. The research demonstrates that short-term credentials provide rapid workforce entry but require stacking and progression toward longer credentials to generate sustained economic benefits.

Conclusion

Workforce-centered strategies reveal an area in transition, moving from more fragmented initiatives toward comprehensive, system-level approaches; however, there are gaps in the literature on how state investment in these strategies supports outcomes. While individual

interventions show potential promise, their effectiveness depends critically on intentional structural design, access, and integration within broader educational pathways. For states, this presents an opportunity to use state data systems to better understand and measure the effectiveness of these strategies and investments, building an evaluation model that supports future decision-making and allows higher education to adapt quickly, when needed, to evolving workforce needs. Successful coordination and workforce alignment require not only enhanced data infrastructure and sustainable funding mechanisms but also genuine collaboration among educational institutions, employers, and policymakers who share accountability for student outcomes.

ENDNOTES

1 WICHE is a regional higher education interstate compact that includes 15 states and the U.S. Pacific Territories and Freely Associated States. The use of the term state reflects all states, territories, and freely associated states in the WICHE region. The WICHE region includes Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, North Dakota, Oregon, South Dakota, Utah, Washington, Wyoming, and the following U.S. Pacific Territories and Freely Associated States: American Samoa, Commonwealth of the Northern Mariana Islands, Federated States of Micronesia, Guam, Republic of the Marshall Islands, and Republic of Palau. Throughout this brief, the term "state" is understood to include states, territories, and freely associated states.

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