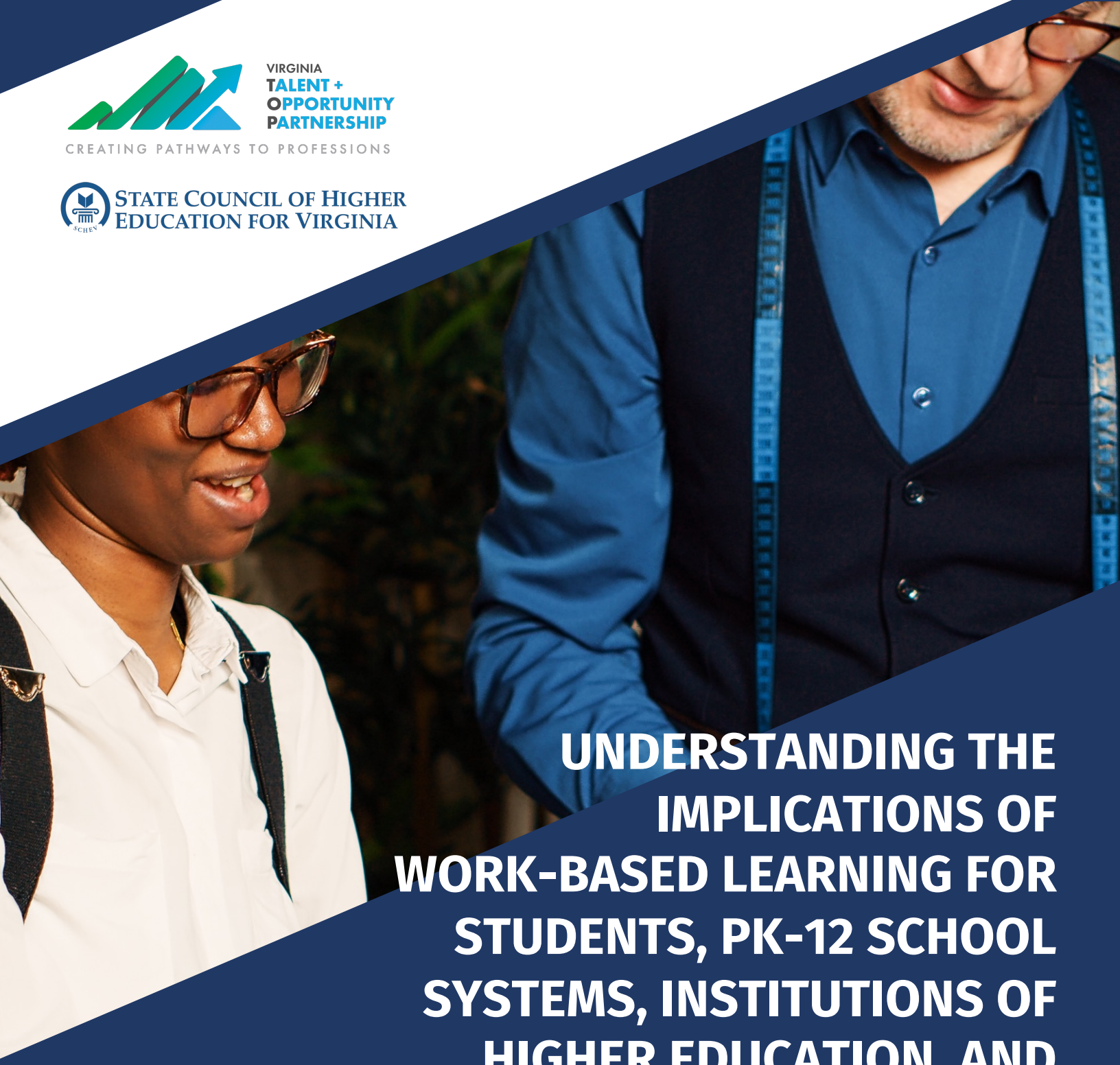
VIRGINIA TALENT + OPPORTUNITY PARTNERSHIP

CREATING PATHWAYS TO PROFESSIONS

STATE COUNCIL OF HIGHER EDUCATION FOR VIRGINIA



UNDERSTANDING THE IMPLICATIONS OF WORK-BASED LEARNING FOR STUDENTS, PK-12 SCHOOL SYSTEMS, INSTITUTIONS OF HIGHER EDUCATION, AND HOSTING ORGANIZATIONS

an ICRE and MERC research report

VCU Institute for Collaborative Research and Evaluation

CONTENTS

EXECUTIVE SUMMARY

This report summarizes research related to work-based learning (WBL), including its history and purpose as well as considerations for establishing high-quality and equitable programs for PK-12 school systems, institutions of higher education, and WBL hosting organizations. Key findings from the report are included here.

History and Purpose of WBL

- **Learning theory perspectives as well as labor market perspectives** have both contributed to recognition of the importance of WBL. Together, they have furthered understanding that successful WBL is authentic and meaningful, connected to both classroom knowledge and to students' career goals or aspirations, and that it promotes the development of skills and professional networks that support students in their post-education endeavors. Additionally, there may be **benefits of WBL at the state level** including strengthening economic growth by meeting industry demands, bridging skills gaps, increasing overall employment rates, and retaining a skilled workforce in the state.

WBL in PK-12

- **Access to WBL in PK-12 settings** is largely dependent on how effectively staff are trained in its implementation, the degree to which PK-12 school systems can establish partnerships with hosting organizations, the breadth and consistency of communication about WBL opportunities, and the degree to which funding is available to support them.
- The **quality of WBL in PK-12 settings** is built on the quality of mentoring relationships formed between students and their supervisors, the degree to which the experiences are connected with school curricula, and the opportunities available for hands-on, real-world learning.
- The **outcomes of PK-12 students participating in WBL** include satisfying graduation requirements, developing skills needed by employers, improving college preparedness, and potentially even higher lifetime earnings.
- **PK-12 institutions may benefit from WBL** by fulfilling an in-demand need for the families they serve, fostering mutually beneficial relationships with partnering organizations and institutions of higher education, expanding Career and Technical Education course offerings through real-world application, and fostering potential employment pipelines for graduates.
- **Challenges or barriers associated with WBL in PK-12 settings** include access to reliable transportation to and from the work site, deficits in skills required by employers, time constraints during the school day, and liability concerns.

- **Equity considerations for WBL in PK-12** include the particular potential benefits of participation for low-income students, the opportunity for members of underrepresented groups to learn from someone from their backgrounds in a work setting, and potential misconceptions by employers about participation in WBL by students with disabilities.

WBL in Institutions of Higher Education (IHEs)

- **Access to WBL in IHEs** may be limited for students participating in social sciences and humanities relative to STEM and business majors, as well as for students in rural or remote geographic areas. Additionally, research suggests that social networks (facilitated to varying degrees by the IHEs where students are enrolled) can support WBL access.
- The **quality of WBL in IHEs** is dependent on relevance to the students' field of interest, the degree to which students are provided opportunities for expert guidance as well as the autonomy permitted within the work setting, the quality of the mentoring relationship established with supervisors, students' sense of belonging within the organization, and the availability of compensation. Additionally, research indicates that remote WBL is not always perceived as being of similar quality to in-person opportunities.
- The **outcomes of IHE students in WBL** include gaining hands-on learning experience and skills in relevant industries, establishing professional networks, potential career-placement opportunities post-graduation, improved academic achievement, and an enhanced sense of civic engagement.
- **IHEs may benefit from WBL** by improving their visibility and reputation, rounding out their curriculum with hands-on learning experiences, demonstrating that they can support the financial needs of their students (through paid internships and job placements), and increasing alignment of curriculum with the current needs of employers in the state.
- **Challenges or barriers associated with WBL in IHE settings** include the potential cost to students for participation (especially if the opportunities are unpaid), lack of transportation, competing time commitments by students, inconsistent quality of WBL, and lack of social capital in industries where it is particularly important (e.g. law or finance).
- **Equity considerations for WBL in IHE settings** include lower likelihood of paid opportunities for low-income students, female students, and students from minoritized racial and ethnic backgrounds, compounding challenges experienced by first-generation students, pressure felt by female students in male-dominated industries, and competing work demands that are more likely to be felt by students from low-income and minoritized racial and ethnic backgrounds.

WBL Hosting Organizations

- **Access to WBL** may be impacted by hosting organizations' liability concerns, lack of infrastructural capacity, costs associated with providing paid internship opportunities, and the availability of tax incentives at the state level.
- The **quality of WBL in hosting organizations** is affected by the mentoring relationships established between students and supervisors, the ability of hosting organizations to collaborate with IHEs and PK-12 school systems, the clarity of expectations set at the work site, and the attention given to the design of the internship experience.
- **Hosting organizations may benefit from WBL** by identifying early-career talent and establishing a potential employment pipeline, feeling a sense of reward through the provision of quality mentoring to students on the work site, bringing new ideas into the organization, establishing a diverse applicant pool, and building and strengthening networks within their communities.
- **Equity considerations for WBL in hosting organizations** include the lower likelihood that low-income students will participate in internships, the importance of compensation, overreliance for recruitment on institutions that lack diversity, the potential for unconscious biases in hiring practices, and inconsistent quality of remote WBL opportunities that may be the only way for some students to access them.

UNDERSTANDING THE IMPLICATIONS OF WORK-BASED LEARNING FOR STUDENTS, PK-12 SCHOOL SYSTEMS, INSTITUTIONS OF HIGHER EDUCATION, AND HOSTING ORGANIZATIONS

David Naff, Amy Corning, Meleah Ellison, Albion Sumrell, Zehra Sahin Ilkorkor, Jennifer Murphy, and Ciana Cross

June 2023

The roots of work-based learning extend back to the Middle Ages, but more recent interest in experiential and work-based learning (WBL) has been tied to the social ferment and generational conflict of the 1960s, when public attention was drawn to the separation of youth from older generations, in part through the different institutions – school and work – they inhabited.[1] During the 1960s and 1970s, educators began to evaluate the relevance of higher education to contemporary society,[2] and those efforts led to greater appreciation for the value of out-of-classroom, "experiential" learning as a part of students' education and development. These factors, combined with the increase in numbers of college students during the last quarter of the 20th century,[3] and perhaps further assisted by a broad shift toward acceptance of part-time and "contingent" labor, resulted in a dramatic increase in WBL programs and participation that was evident by the 1990s.[4]

WHAT IS WORK-BASED LEARNING?

Work-based learning is a broad term that has been used in two ways. On the one hand, it can refer to an educational approach or strategy in which learning takes place through authentic experience connected to a workplace (whether physical or virtual).[5] The goal may be to "enhance the traditional objectives of schooling," especially for secondary students,[6] or to provide opportunities for the development of skills that are best learned through work-based experiences.[7] For instance, the 2018 *Strengthening Career and Technical Education for the 21st Century Act* (Perkins V) defined WBL as

[1] Rath (1977)
[2] CAS (2018); Perlin (2011)
[3] Waxman (2018)
[4] Perlin (2011)
[5] E.g. Advance CTE: Setting a Statewide Vision (2015)
[6] Bailey et al. (2004), p. 15.
[7] Lester & Costley (2010); Bailey et al. (2004)

> sustained interactions with industry or community professionals in real workplace settings, to the extent practicable, or simulated environments at an educational institution that foster in-depth, first-hand engagement with the tasks required in a given career field, that are aligned to curriculum and instruction.[8]

On the other hand, WBL is also frequently used as an umbrella term that refers to the set of models or types of experiences through which students can learn about and prepare for careers. For example, the Virginia Department of Education (focusing especially on middle and high school students) defines WBL as "school-coordinated workplace experiences related to students' career goals and/or interests, integrated with instruction, and performed in partnership with local businesses and organizations."[9]

In practice, the two meanings are often not distinct, as reflected in some scholars' definitions, e.g. "'work-based learning' logically refers to all and any learning that is situated in the workplace or arises directly out of workplace concerns."[10]

WHY IS WORK-BASED LEARNING IMPORTANT?

WBL is often assessed from two different perspectives: its value for learning and its labor market value.

Learning theory perspectives

Educators and psychologists concerned with human learning and development have long focused on the significance of active, concrete experiences in which students apply their knowledge – the "synergy" of learning and doing.[11] As articulated by Kolb in **Experiential Learning Theory** (ELT), the key component of this process is the construction of knowledge through "the combination of grasping and transforming experience."[12] Kolb is credited with formalizing ELT, but the core insight animating his theory – that learning and development are grounded in experience – was central to the work of a cross-disciplinary set of early and mid-twentieth century scholars, including especially Dewey, Lewin, and Piaget.[13] According to ELT, the successful learner works through a cyclical process involving four modes of engagement:

- **concrete experiences** (1), which
- provide the basis for **observation and reflection** (2), which

[8] U.S. Department of Education (2021)
[9] VDOE HQWBL Guide (2022)
[10] Lester & Costley (2010), p. 562.
[11] Helyer & Lee (2014)
[12] Kolb (1984), p. 41.
[13] Kolb (1984); Kolb & Kolb (2005)

- give rise to **abstract conceptualizations and hypotheses** (3),
- which are then tested through **further experiences** (4).[14]

While some critics of ELT have noted the theory's limited empirical bases[15] and others have questioned Kolb's interpretation of earlier scholars' work,[16] the model remains influential. It has been both simplified[17] and elaborated with attention to the role of social context in learning.[18] With respect to WBL specifically, scholars have underscored the degree to which knowledge is jointly constructed by the learner and the workplace community through complex, socially situated, and shared activity.[19]

Accounts of experiential learning by psychologists and educators have contributed to broader recognition that WBL is "more than just a young person getting a job or gaining work experience."[20] These perspectives have helped to guide colleges and universities as well as employers in structuring experiences to incorporate the four modes of engagement that ELT identifies as important, maximizing the value of WBL to both students and employers.[21] Our review suggests that those involved with WBL initiatives are increasingly aware that experiential learning is a process rather than an outcome and that students will benefit from guidance and structures that help them connect abstract knowledge to concrete experiences, reflect upon new learning, and integrate it with prior knowledge.

Labor market perspectives

Changes in the labor market have also contributed to the growth of interest in WBL. Millennials are entering stable, well-paying jobs at older ages compared to previous generations.[22] The youth labor market has faded, in part due to the recessions of the 2000s and in part due to automation of many tasks, making it more difficult for young people to gain high-quality experience in part-time jobs. As a result, they have had fewer opportunities for career exploration and development of general work skills.[23]

At the same time, demand for workers has intensified for a variety of reasons,[24] and employers are anxious to develop talent pipelines that can provide a constant supply of

---

[14] Kolb (1984)
[15] Bergsteiner et al. (2010); Jarvis (2012), cited in Morris (2020)
[16] Miettinen (2000), cited in Morris (2020)
[17] Bergsteiner et al. (2010)
[18] Morris (2020); Jarvis (2012), cited in Morris (2020)
[19] Moore (1999), although he does not mention ELT directly. A smaller number of researchers investigating WBL have drawn on Transformative Learning Theory (e.g. Spector & Infante, 2020), which emphasizes the importance of perspective transformation through experience in bringing about change in meaning structures. Because the theory addresses the issue of change in established habits of mind, however, it is most relevant to processes of adult learning.
[20] Hoff et al. (2021), p. 1
[21] E.g. Chisholm et al. (2009)
[22] Carnevale et al. (2022)
[23] Carnevale & Smith (2018); Carnevale et al. (2022)
[24] Ferguson (2023); Elliott (2021)

labor.[25] Despite low unemployment, shortages in specific sectors point to potential labor mismatches and barriers to entry.[26] Further, in making hiring decisions, employers may be focused on skills at least as much as degrees.[27]

Advocates of WBL also invoke the changed circumstances of the contemporary workplace. Twenty-first century college graduates will need to apply their skills in "increasingly nuanced and hybrid" ways at work; the necessary skills are "transferable and generic," allowing for adaptation to specific contexts.[28] Higher education can prepare them by providing a "holistic" educational experience,[29] with experiential WBL playing a significant role, especially given evidence that work-based contexts are more effective than classrooms for teaching and learning "soft" skills.[30] Many institutions of higher education now incorporate WBL into curricular offerings;[31] internships, in particular, are recognized as one of ten "high impact practices" that promote student engagement and success.[32]

Some analysts argue that WBL experiences can provide "practical solutions to comprehensive workforce training as they bridge theoretical knowledge and practice," especially for community college students.[33] Expansion and institutionalization of internships and other forms of WBL, it is suggested, can benefit local labor markets, in addition to increasing opportunities for students.[34]

Observers who approach WBL from a labor market perspective are generally concerned with the practical benefits work-based experiences are believed to confer – particularly a faster, smoother transition to the workplace and higher incomes. For businesses and other hosting organizations, WBL can introduce young people to a field, provide training, and increase the pool of potential employees. The literature has identified multiple mechanisms through which internships, in particular, might promote such outcomes; the major ones are shown in Table 1.

---

[25] Gallagher et al. (2019); Fuller et al. (2021)
[26] JFF & The Policy Leadership Trust (2022)
[27] Fain (2021); ASA & JFF (2022)
[28] Helyer & Lee (2014), p. 352; Hoff et al. (2021); but cf. Benbow & Hora (2018)
[29] Helyer & Lee (2014), p. 352.
[30] Bolli et al. (2021)
[31] Helyer & Lee (2014); Knight & Yorke (2003)
[32] Kuh (2008); Kuh et al. (2017)
[33] Lucero et al. (2021), p. 103
[34] Kazis & Snyder (2019)

Table 1. Theoretical perspectives connecting students' WBL experiences to outcomes

Perspective	Outcomes affected and description of mechanism
Social cognitive career theory[35]	Builds on **social cognitive theory**[36] to suggest that self-efficacy beliefs are tied to education and career outcomes. As WBL experiences enhance self-efficacy through learning experiences and exposure to role models,[37] students should gain confidence or come to see certain careers as attainable, resulting in improved employment outcomes.
Human capital theory[38]	Suggests that WBL experiences enhance students' social and professional skills, making them more experienced and thus attractive candidates for employment.[39] In principle, such skills might be either general and transferable, or specific to a field, occupation, or organization.[40] In a related mechanism, WBL experiences are thought to enhance students' academic performance, affecting employment outcomes through better grades.[41]
Social network theory[42]	Along with **social capital** perspectives more generally, suggests that WBL experiences enhance students' professional networks and connections, increasing their awareness of or access to opportunities.[43]
Signaling theory[44]	Completion of an internship (or other extended WBL experience) is believed to signal students' motivation and ambition to employers (who cannot directly observe prospective employees' productivity), and potentially also their possession of specific skills.[45]
Matching theory framework[46]	Matching theory, along with several other approaches,[47] argues that students treat their WBL experience as a probationary period that allows them to determine whether a job or field is right for them.[48]
Screening or probationary period[49]	Similar to matching theory, but from the employer's perspective; suggests that employers treat WBL as an opportunity to determine whether or not to extend a (future) job offer to the student.
Leader-member exchange theory[50]	Focuses on the quality of the employee-supervisor relationship and implications for workplace outcomes; extension to intern-supervisor relationships has been proposed.

[35] Lent et al. (2000)
[36] Bandura (1986)
[37] Thompson et al. (2021)
[38] Becker (1994)
[39] Bolli et al. (2021); Baert et al. (2021); Wan et al. (2013)
[40] Bolli et al. (2021)
[41] Binder et al. (2015); Bolli et al. (2021)
[42] Granovetter (1973)
[43] Kazis & Snyder (2019); Baert et al. (2021); Bolli et al. (2021)
[44] Spence (1973)
[45] Baert et al. (2021); Bolli et al. (2021); Nunley et al. (2016)
[46] Jovanovic (1979), cited in Baert et al. (2021)
[47] Cook et al. (2004)
[48] Baert et al. (2021)
[49] Margaryan et al. (2020); Stiglitz (1975); Divine et al. (2007); Morrow (1995), cited in Baert et al. (2021); Bolli et al. (2021)
[50] Rose et al. (2014)

The employability narrative

Implicit in some commentary from a labor market perspective is the "employability narrative," which frames the purpose of higher education as that of preparing graduates with skills that will meet the needs of employers and promote economic growth.[51] In the United States, job market and workplace changes have coincided with ballooning costs of higher education and concerns about the financial burden of college. In some fields in European countries, employers expect students to graduate from university with internship experience.[52] With colleges and universities tasked with preparing students for employment and often judged on the degree to which they provide a "return on investment,"[53] WBL experiences may be appealing to schools, students, families, and policymakers because they both demonstrate and promote students' employability.

The employability narrative has been criticized, however, for its simplistic representation of "soft" skills, for shifting the responsibility and risk of acquiring education and skills to the individual, and for suggesting that employability is simply a matter of acquiring the "right" set of skills – a stance that neglects the larger economic and labor market context, not to mention the role of geographic location, social networks, cultural capital, race, and gender (among other factors) in structuring access to employment – and to education in the first place.[54]

Recent attention to problems of access to WBL opportunities and how they can best be designed for successful learning may be leading schools, colleges, universities, and hosting organizations (e.g. employers) to recognize that the risk and responsibility for WBL must be shared. When WBL experiences are intentionally designed to promote access and participation by students from historically marginalized groups, to provide meaningful opportunities to develop skills and build networks, and to help students make informed choices about career paths, they can in principle help to address some of the structural disadvantages that the employability narrative itself fails to recognize.[55]

What are the collective state level workforce outcomes associated with WBL?

From a labor market or workforce perspective at the state-level, WBL can provide numerous advantages that may help states fulfill their economic, educational, and workforce needs.

---

[51] Benbow & Hora (2018); Moreau & Leathwood (2006)
[52] Helyer & Lee (2014)
[53] Hora, Newman et al. (2020); Fain (2021)
[54] Benbow & Hora (2018); Hora, Newman et al. (2020)
[55] E.g. Ross et al. (2020), Kuh (2008); see also Thompson et al. (2021); Baert et al. (2021); Gallagher et al. (2019); Carnevale & Smith (2018)

- For state and other government agencies, offering WBL can expose PK-12 and postsecondary students to public sector careers.[56] This also supports agencies in hiring from the local community, **thereby sustaining and improving the quality and quantity of public services.**[57]
- Additionally, **WBL programs strengthen economic growth by aligning workforce skills with industry demands.** By equipping individuals with pertinent skills and experience, WBL can enhance a state's competitiveness, attracting businesses and investments.[58]
- Furthermore, **WBL can effectively bridge the skills gap by providing participants with practical training and industry-specific skills**. This addresses disparities between education and workforce requirements, reducing skill shortages and improving labor market outcomes throughout the state.[59]
- **Well-designed WBL initiatives should heighten participants' employability**, leading to increased employment rates within the state.[60]
- **Robust WBL programs can help states retain future generations of skilled employees**. When students graduate from high school and college, they may seek employment in other states where there is greater economic opportunity. WBL can help enhance the economic climate in a state for the reasons listed above, and it can generate direct connections between students and organizations who are prepared to offer them employment.[61]

What are different frameworks for conceptualizing WBL experiences?

Researchers investigating the design and impact of WBL have noted a lack of definitional consistency. Still, many frameworks and discussions share three elements:

- an emphasis on alignment of WBL experiences with curricular content;
- exposure to work sites, practitioners or employers, or opportunities to experience aspects of work or occupations;
- and in some cases, partnerships between educational institutions and businesses, industry, non-profits, or professional organizations.[62]

Typologies of the WBL continuum generally encompass:

- experiences designed to promote career awareness and preparation, relevant for all, including the youngest students,

[56] Baker & Johnson (2021)
[57] Elliott et al. (2021)
[58] Robson et al. (2021); Ross et al. (2020)
[59] Ross et al. (2020); Wilson & Mehta (2017)
[60] Robson et al. (2021)
[61] NACE (2016)
[62] E.g. CCSSO (2014); Maag et al. (2021)

- more intensive but temporary experiences in work settings (such as cooperative education or internships) for secondary and postsecondary students engaged in a formal program of study,
- and extended on-the-job training, such as apprenticeships, medical residencies, etc., typically for individuals of high school age and older.[63]

Three examples of the many frameworks used in conceptualizing the WBL continuum are presented in Table 2; the first two include experiences for the full range of learners, from the youngest students to adults, while the third focuses on experiences for high school students.[64] A distinguishing and useful feature of Jobs for the Future's graphic representation of its framework is that it makes explicit the potential non-linearity of the progression from one experience to another: the figure shows that individuals may cycle back and forth between career exposure and engagement experiences, or they may carry out further career exploration after participating in activities in the career exposure or engagement categories.[65]

Increasingly, researchers and advocates are attempting to specify the core components of WBL that influence the access to and quality of the experience, and its impact on student learning. For example, recent discussions have highlighted the importance of meaningful work experiences; clear goals for the experience; mentoring, feedback, and guidance on the part of both the employer and the student's institution; and compensation.[66] Regardless of the specific type of WBL experience – including emergent forms, such as remote or hybrid internships, micro-internships, sprinternships, etc. – these elements are viewed as important.

[63] Bailey et al. (2004); Maag et al. (2021)
[64] Hora, Wolfgram et al. (2020), p. 5-6, present a useful comparison of five different ways of conceptualizing WBL.
[65] JFF (n.d.)
[66] Torpey-Sarboe et al. (2022); Hora, Wolfgram et al. (2020)

Table 2. Example Work-Based Learning Frameworks

Work-Based Learning Framework (Jobs for the Future – Center for Apprenticeship & Work-Based Learning, 2020)

	Career Exploration: Awareness, foundation, preparation	*Career Exposure: Industry introduction, short-term*	*Career Engagement: Basic technical and employability skills*	*Career Experience: Specific skills, permanent employment*
	• Career fairs • Industry projects • Interest inventories • Mock interviews	• Job shadowing • Company tours • Mentoring • Simulations • Information • Interviews	• Internship • Pre-apprenticeship • Apprenticeship readiness • Cooperative education • Service learning	• Registered apprenticeship • Youth apprenticeship • Other forms of apprenticeship • Transitional job • On-the job training • Work-based courses

Work-Based Learning Continuum (Colorado Workforce Development Council, 2023)

	Learning about Work	*Learning through Work*	*Learning at Work*
	• Career counseling • Career planning • Career fairs • Presentations • Industry speakers • Informational interviewing • Worksite tours • Project-based learning	• Clinical experience • Credit-for-work experience • Internship • Pre-apprenticeship • Industry-sponsored project • Supervised entrepreneurship experiences	• Apprenticeship • On-the-job training • Employee training

Work-Based Learning Continuum (geared toward high school students; Education Commission of the States, 2020)

	Career Exposure	*Career Engagement*	*Career Experience*
	• Job shadowing • Company tours • Mentoring • Simulation • Informational interviewing	• Internship • Pre-apprenticeship • Service learning	• Youth apprenticeship

Practical considerations for those implementing WBL

Guidance on best practices is increasingly available for those who wish to initiate or improve WBL.[67] Full consideration of that literature is beyond the scope of this review, but we include two short appendices that focus on specific aspects: a brief consideration of the importance of collaboration among stakeholders (Appendix A), and a brief overview of the value of comprehensive, systematic data (Appendix B).

When it comes to defining particular models or forms of WBL, there is even less consistency than is the case for WBL frameworks.[68] We include a brief review of various forms of WBL in Appendix C, focusing primarily on those most frequently available to students pursuing formal studies, from preschool and kindergarten to postsecondary education, noting differences when experiences are designed for secondary school or younger students.

[67] E.g. Advance CTE: Setting a Statewide Vision (2015); Advance CTE: Connecting the Classroom to Careers (2016)
[68] E.g. NACE position statement (2018); Hora, Wolfgram, et al. (2020)

WORK-BASED LEARNING IN PK-12

WBL opportunities are instrumental in helping PK-12 students to learn more about potential career pathways, informing the selection of postsecondary majors, and offering entry-level opportunities into the workforce.[69] While WBL may be acutely impactful for students in institutions of higher education, introducing these opportunities at the PK-12 level provides a foundation from which middle and high school students can begin to plan for their future careers.[70] Furthermore, schools often have existing infrastructures that can be leveraged to integrate meaningful WBL experiences, including career and technical education (CTE) classes[71] and school counselors who can offer career consultation in developmentally appropriate ways.[72] Examples of effective WBL initiatives cited in research indicate the value of formal partnerships between PK-12, WBL hosting organizations, and institutions of higher education. These formal partnerships between stakeholders generate WBL pathways, processes, and protocols that support academic learning and career readiness. While the opportunities surrounding WBL at the PK-12 level are clear, there are also challenges to navigate in order to maximize its potential benefit.

What are the factors affecting access to WBL in PK-12?

Career counseling across a student's educational tenure allows them the opportunity to explore career fields in immersive ways. According to the Southern Regional Education Board, this includes career awareness activities, opportunities for career exploration, career preparation support, and intentional workforce training.[73] While there is typically broad eligibility for WBL at the PK-12 level, access to high quality opportunities may depend on several factors.[74]

- **School staff play a critical role in making WBL opportunities available to students.** Comprehensive and relevant professional development for school staff who support WBL initiatives provides personnel with the knowledge and processes to best assist students with career navigation and impactful WBL opportunities that have the potential to lead to positive lasting outcomes.[75]
- Research highlights that **clear and consistent statewide communication about WBL opportunities benefits all stakeholders**, including students, families, employers, and educators.[76] As of 2021, only seven states had established an active

[69] Maag et al. (2021)
[70] Ross et al. (2018)
[71] Robson et al. (2021)
[72] Ross et al. (2018)
[73] Southern Regional Education Board (2020); also referenced in the JFF framework in Table 2.
[74] Robson et al. (2021)
[75] Maag et al. (2021)
[76] Robson et al. (2021)

statewide communication infrastructure to provide wide-reaching information about WBL opportunities in PK-12.[77]

- Research repeatedly emphasizes that **state legislative policies play a critical role in the access PK-12 students have to meaningful WBL opportunities**. The Council of Chief State School Officers cites examples of states funding partnerships to provide structured WBL. There are examples of states creating policies that allow WBL to count towards academic credits and required technical skills for specific apprenticeships. Other states have policies in place that require or provide funding for PK-12 WBL initiatives, which may include paid WBL opportunities or funds for school districts to support costs associated with WBL.[78] Additionally, states may grant employer subsidies, expand pre-existing WBL initiatives, and make WBL a funded priority at the state policy level.[79]

What are the factors affecting the quality of WBL experiences for PK-12 students?

High quality WBL for PK-12 students attends to their developmental needs while offering opportunities to engage in career-oriented learning. Research suggests that there are several factors that can help improve the quality of such opportunities.

- **Students benefit when WBL is connected with their school curricula** to help draw real-world connections and provide a pedagogical foundation for the work that they are doing.[80]
- Furthermore, **students tend to benefit when WBL affords opportunities for them to engage in hands-on learning with current technologies, equipment, and resources** that they would be expected to use in their future careers.[81]
- PK-12 students may be more likely to experience anxiety when engaging in WBL than college students, suggesting that **establishing positive and meaningful relationships with employers that helps put them at ease can promote a beneficial experience**.[82] This is consistent with research suggesting that the quality of the mentoring relationship within WBL is paramount, perhaps especially for younger student participants.[83]

What are the outcomes for PK-12 student participants in WBL?

Research documents several key outcomes of PK-12 students associated with their participation in WBL opportunities. These include potential benefits not only in career

[77] Robson et al. (2021)
[78] Wilson & Mehta (2017)
[79] Wilson & Mehta (2017)
[80] Gallagher & Savage (2020)
[81] Jeffrey & Jiminez (2021)
[82] Gamboa et al. (2013)
[83] Hamilton et al. (2022)

development, but also in academic, social, and emotional domains.[84] Many of these benefits emerge through the activities and processes that PK-12 students experience when engaging in WBL, including interactions with employers, participation in collaborative and multidisciplinary work, critical thinking and problem solving, and real-world application of the curriculum that they learn in school.[85]

- **PK-12 students participating in WBL can satisfy graduation requirements**. According to a 2018 report by the Education Commission of the United States, at least 34 states require students to engage in coursework like CTE or WBL opportunities that help position them to meet their post-graduation career goals. Often, the requirement can be met through either curricular or co-curricular (e.g. internship) involvement. For example, Virginia high school graduation requirements state that students need to have completed either a "AP, Honors, IB, Dual Enrollment, Work-Based Learning, or CTE Credential" for a standard diploma.
- **WBL opportunities can generate skills in PK-12 that are highly valued by employers**. Some of these skills identified in the research include teamwork and collaboration,[86] exploratory and divergent thinking,[87] and communication.[88] Research shows that enhancement of these skills tends to be most acute during and immediately after the WBL experience.[89]
- Research shows that **participation in WBL can improve college readiness[90] and the likelihood that students will matriculate into a postsecondary institution after high school graduation**.[91] This includes evidence that participation in **WBL can positively impact two- and four-year college matriculation** for students with varying levels of prior academic achievement, including lower high school GPAs.[92] One potential contributing factor is the increased tendency for students to see themselves in a particular college major or career after participating in WBL, particularly for students from demographic backgrounds or with identities that are underrepresented in their careers of interest.[93]
- Participation in **WBL can increase graduates' chances of employment and is associated with higher lifetime earnings**. A recent Belgian analysis found that internship participation during secondary school positively affected graduates' chances of employment, an effect that largely persisted during the first five years after graduation.[94] In a 2017 study by Theodos and colleagues, researchers found that students participating in a WBL program called the Urban Alliance had higher

[84] Minnesota Department of Education (2016)
[85] Gallagher & Savage (2020)
[86] Ross et al. (2018)
[87] Gamboa et al. (2013)
[88] Ross et al. (2018)
[89] Theodos et al. (2017)
[90] Lalish et al. (2021)
[91] Theodos et al. (2017); Modestino et al. (2022)
[92] Theodos et al. (2017)
[93] Hsu & Venegas (2018)
[94] Neyt et al. (2022)

rates of employment and earnings than students in the control group eight years after participation.

What are the outcomes of WBL at the PK-12 institutional level?

In addition to the potential benefits for PK-12 students participating in WBL, research shows that PK-12 school systems stand to benefit from such partnerships. This is based on the opportunity for PK-12 institutions to expand their infrastructure for offering educational experiences to their students while also addressing potential equity issues in student access to learning opportunities that support career development.[95]

- Research shows that parents increasingly recognize the value of WBL opportunities for their children.[96] This can lead to demands by parents for their PK-12 school systems to provide WBL opportunities, and **the inclusion of WBL can demonstrate that schools are being responsive not only to the needs of students, but also of parents**.[97]
- **WBL opportunities can help PK-12 school systems establish meaningful partnerships with institutions of higher education.** These partnerships can lead to further curricular benefits as well, including dual enrollment programs wherein students are able to simultaneously earn high school and college credit by participating in courses often taught by faculty in two- or four-year colleges hosted on their campuses.[98]
- Providing **WBL opportunities can enhance the CTE curricular offerings in PK-12 school systems.** CTE classes are intended to offer students learning experiences related to careers that they may want to pursue, either immediately after high school or following college graduation.[99]
- Establishing partnerships between PK-12 school systems and employers can be challenging to initiate, and establishing **WBL opportunities can offer a conduit for connections. Such connections may prove beneficial both in terms of ongoing WBL for enrolled students, and in terms of potential employment opportunities for graduates.**[100]

What are the challenges or barriers to WBL in PK-12 settings?

PK-12 institutions may encounter numerous unique barriers to WBL, including not only the forging of relationships with employers, but also communicating WBL opportunities to students and planning the logistics of a successful WBL experience.[101]

---

[95] Robson et al. (2021)
[96] PBLWorks (2021)
[97] Carlson (2020)
[98] Jeffrey & Jiminez (2021)
[99] Robson et al. (2021); Wilson & Mehta (2017)
[100] Jeffrey & Jiminez (2021)
[101] Robson et al. (2021)

- **Transportation has the potential to be a significant challenge**, especially for PK-12 students who are unable to drive or have limited access to reliable public transit. Parents or guardians may be apprehensive or unable to provide transportation for the student to participate in WBL opportunities.[102]
- In addition to managing relationships between stakeholders and logistics, **WBL often requires technical and professional skills that many PK-12 students may not possess** or may not have had the opportunity to develop.[103] This may make it challenging to establish WBL partnerships with employers who require an already skilled workforce.
- While career counseling is often part of comprehensive social-emotional learning support provided by school staff,[104] schools have specific course requirements in order for students to advance academically. This **required coursework rarely leaves available time during traditional school hours for students to participate in WBL**.[105] Thus, unless PK-12 institutions build WBL opportunities into the school day, participating in them (sometimes to fulfill a graduation requirement) can prove challenging.
- **For liability and legal purposes, there is a question of whether PK-12 school staff need to be on-site to provide supervision for students who are participating in WBL experiences.**[106] While this concern is understandable from the perspective of the WBL hosting organization, it presents potential logistical challenges as schools may be tasked with managing the availability of staff to provide the necessary supervision.

What are the implications for equity in WBL at the PK-12 level?

Research supports the importance of steps by policymakers and stakeholders to develop and maintain structures that allow all students to equitably access WBL opportunities, regardless of race, ethnicity, gender, native language, location, socioeconomic status, or disability status.[107] When crafting WBL in PK-12 spaces with an eye on equity, it is critical that policymakers and educators prioritize practices that are inclusive of students who face barriers in accessing WBL opportunities, and offer targeted expansion where access may be lacking.[108]

- **Research identifies the benefit for PK-12 students of seeing the connection between education and the workforce as an opportunity for upward economic mobility**.[109] Through career exploration opportunities that WBL provides, PK-12 students learn how various skills, experiences, and credentials can elevate them

[102] Hoff et al. (2021)
[103] Gallagher & Savage (2020)
[104] Carnevale et al. (2022)
[105] Hoff et al. (2021)
[106] Hoff et al. (2021)
[107] Gamboa et al. (2013); Robson et al. (2021); Sugarman (2023); Wilson & Mehta (2017)
[108] Mathematica (2021)
[109] Carnevale & Smith (2018)

towards high-demand careers and increased earning power. As a result, students may be positioned to achieve greater financial stability, with both short- and long-term benefits for participating students and society at large.[110]

- While there is potential value for all students, research suggests that **WBL may have a particularly meaningful impact on students from low-income backgrounds**.[111] It can provide access to the social capital, professional network, and educational enrichment opportunities that may not have been available to them otherwise.
- **WBL can provide an opportunity for students from underrepresented groups to see professionals from similar backgrounds or with similar identities in roles in which they may not have previously seen themselves represented**. These experiences can provide them with role models and encourage them to aspire to careers they otherwise may not have considered or thought possible.[112]
- According to Sugarman (2023), WBL can create pathways to meaningful work and financial stability for students who are either nongraduates or who completed their coursework through GED programs. **It can also serve as an incentive for students to persist through PK-12 education,** by exposing them to real-world application of the curriculum or offering an alternative, enriching experience for those who feel disengaged or unmotivated in academic settings.
- In a 2019 study by Riesen and Oertle of employers affiliated with a statewide Chamber of Commerce, researchers found that many employers were hesitant to host WBL opportunities for students with intellectual and developmental disabilities (IDD). **Employers cited concerns about safety and work potential, but data showed that these concerns were often rooted in misconceptions** regarding the skills and capacity of individuals with IDD rather than negative experiences of the employer.[113]

[110] Maag et al. (2021)
[111] Maag et al. (2021)
[112] Patel et al. (2021)
[113] Riesen & Oertle (2019)

WORK-BASED LEARNING IN INSTITUTIONS OF HIGHER EDUCATION

WBL experiences are an opportunity for students in institutions of higher education (IHEs) to gain critical hands-on skills that allow them to be better equipped for the workforce while developing experiential learning in careers that may be of interest. With IHEs often having strong relationships with businesses in the surrounding community, students in a variety of academic fields have WBL programs available to them to expand their skills as well as their professional networks.[114] This section will discuss the implications of WBL within IHE settings, including the challenges it presents and individual and institutional outcomes it may generate. The majority of the research summarized here relates to WBL in four-year college programs, suggesting a need for more attention in scholarship to implications related to two-year institutions and the students they serve.

What are the factors affecting access to WBL experiences in institutions of higher education?

Access to WBL opportunities presents a significant challenge. Many postsecondary students are interested in participating in internships or related experiences but find them inaccessible. Hora, Wolfgram and colleagues (2021) found that 64% of students in their study wanted to pursue an internship but were unable to do so due to reasons like conflicting obligations or financial limitations. Research has shown that access to WBL for postsecondary students can vary for several reasons.

- Relevance to the student's major may significantly impact access to WBL. **Students majoring in social sciences, the arts, and humanities have greater difficulty finding relevant WBL opportunities** than students majoring in business, engineering, nursing, or other STEM fields.[115] These fields are also more likely to offer paid internships.[116]
- **The nature of a host organization's relationship with an IHE can affect students' access to WBL opportunities.** Students are able to find internships more easily when organizations have close connections to an IHE and participate in career fairs. Large companies in sectors such as finance and health tend to have close IHE connections, so these opportunities are more readily available to students in certain majors. Because the same companies also are likely to use internships as part of their hiring process, these differences in IHE connections and access have implications for students' later employment opportunities.[117]

[114] Wolfgram & Ahrens (2022)
[115] Carlson (2020); Thompson et al. (2021)
[116] Hora (2022)
[117] Moss-Pech (2021)

- Geographical location can pose a significant barrier because available **WBL opportunities may not always be in close proximity to postsecondary students.**[118] This poses a particular challenge for students with limited economic resources, those who have caregiving responsibilities, a disability, or who live in rural and remote areas.[119]
- Research shows that academic achievement is often a condition for being accepted to internships, suggesting that **WBL may not be as accessible for postsecondary students with lower GPAs**.[120] Postsecondary institutions may promote WBL to academically higher-performing students, and employers may prefer to offer WBL opportunities to those students. Yet research related to WBL in PK-12 settings suggests that it can prove motivational for students who are disengaged in the classroom, suggesting that limiting access based on GPA could result in missed opportunities.[121]
- **Awareness of the importance of internships for building a resume and preparing postsecondary students for the job market or graduate study can positively shape students' approach to and engagement with the internship process**.[122] Conversely, negative perceptions or misunderstanding of internships can restrict students' participation in WBL opportunities.[123]
- **Social networks, including family, faculty, staff, and peers, are an important factor affecting access.** Support systems and social capital can provide contacts leading to positions,[124] encouragement and motivation,[125] and skill development.[126]
- Research shows that well-resourced institutions (often termed "prestigious") offer a wide range of coaching services on how to find internships, how to prepare for interviews, and how to improve resumes, whereas other colleges or universities lack these coaching services.[127] To help equitably support students, postsecondary institutions **can enhance WBL opportunities available by working to establish connections with employers and by replicating workplace conditions when WBL is provided on campus.**[128]
- Research shows that **virtual internships can help students gain work experience despite factors that may limit access** such as the location of the company, potential disabilities, and competing family commitments.[129] Virtual internships can also help employers access talented students from outside their local area and hire more interns than their physical office space might allow. However, despite this potential impact of virtual internships, Hora, Lee, and colleagues (2021) found that the

[118] Bayerlein & Jeske (2018)
[119] Bayerlein & Jeske (2018)
[120] Binder et al. (2015)
[121] Sugarman (2023)
[122] Thompson et al. (2021)
[123] O'Connor and Bodicoat (2017)
[124] Thompson et al. (2021)
[125] Wolfgram et al. (2021)
[126] Carlson (2020)
[127] Allen et al. (2013)
[128] Cormier et al. (2022)
[129] Feldman (2021)

majority of participating students come from upper- and middle-class families and that virtual internships are more likely to be unpaid than in-person internships, further exacerbating socioeconomic disparities in access.

What factors affect the quality of WBL experiences for postsecondary students?

Research has identified several factors that can help improve the quality of WBL experiences for postsecondary students. This includes factors related both to the features of WBL and the preferences of the student, such as autonomy, supervisor relationships, coordination between IHEs and hosting organizations, and to the match between students and organizations.

- **Autonomy in learning,[130] degree of autonomy in performing work,[131] and having freedom and opportunity to work without constraints[132] can factor into student satisfaction.** Relatedly, clearly articulating the learning goals of a WBL experience[133] and the associated tasks and activities[134] can contribute to perceptions of quality by participating students.
- **Research repeatedly emphasizes that supervisor support and mentoring play a critical role in the quality of WBL experiences**. The quality of cognitive learning that occurs during an internship depends on how well colleagues and supervisors model the expected processes.[135] Research also highlights that high-quality supervisor-intern relationships improve not only interns' attachment to the work but also the supervisor's attachment to the intern through increasing trust and loyalty.[136] Hence, supervisors who engage in high quality mentoring relationships where they offer hands-on learning opportunities with scaffolded support are more likely to support a student's transition from an internship to employment.[137]
- Research finds that **paid interns are more likely to perceive that their WBL experience positively contributes to their development.**[138] Yet research using ad postings to study demand for interns finds that most internships are unpaid.[139] A 2022 report by the Center for Research on College-Workforce Transitions estimated that there were approximately one million unpaid interns in the previous year, representing roughly one third of the intern workforce.

[130] Torpey-Sarboe et al. (2022)
[131] Hora et al. (2019)
[132] Tenenbaum et al. (2014)
[133] Hora, Lee et al. (2021)
[134] Torpey-Sarboe et al. (2022)
[135] Bayerlein & Jeske (2018)
[136] Rose et al. (2014)
[137] Rose et al. (2014)
[138] Hora et al. (2019)
[139] Jaeger et al. (2020)

- **Organizational socialization, including mentoring, helps students quickly and successfully adjust to a new workplace and build social ties within the company.**[140] A culture of work-life balance is favorable for helping students develop job-related skills.[141]
- Research shows that traditional internships (where interns are integrated into a physical workplace) support improved interpersonal communication and technical skills, allow interns to receive guidance and advice from their coworkers and supervisors, and allow for spontaneous learning opportunities to occur.[142] **Despite virtual internships' positive implications for access, key features influencing quality may be missing. In virtual internships, interns' quality of experience often depends on their level of self-direction, intrinsic motivation, and technical skills**, and the employer's intentional planning to provide systematic, timely, and proactive support to interns.[143]
- **A WBL experience becomes more valuable when it is relevant to the student's field of study and includes an opportunity for reflective learning on the job.**[144] Research indicates that narrative writing during an internship helps interns reflect on their WBL experience and consider their priorities and future development.[145]
- Research shows that **the success of internship programs also depends on the quality of partnerships between IHEs and employers** and IHE screening and selection processes to ensure alignment of institutional objectives, student interests, and organizational needs.[146]

What are the outcomes for postsecondary student participants in WBL experiences?

Outcomes for WBL experiences include applying new-found knowledge and skills in the work setting, acquiring professional skills and knowledge, exploring and discovering potential career opportunities, building professional networks, and developing new skills related to learning in the workplace.[147]

- Research highlights the importance of postsecondary students gaining **professional skills via hands-on learning**, which often is not available in the classroom setting.[148] This is consistent with research, discussed above, that notes the importance of PK-12 students having opportunities for hands-on learning through WBL.

---

[140] Wan et al. (2013)
[141] Wan et al. (2013)
[142] Bayerlein & Jeske (2018)
[143] Bayerlein & Jeske (2018)
[144] Carnevale & Smith (2018)
[145] Levine et al. (2008)
[146] Saltikoff (2017); Torpey-Sarboe et al. (2022)
[147] Nghia & Duyen (2019)
[148] Silva et al. (2016); Baker & Johnson (2021); Helyer & Lee (2014); Hora, Parrott et al. (2020)

- **WBL allows students to develop professional networks and receive guidance from mentors** on potential employment opportunities.[149]
- Postsecondary students with internship experiences gain critical knowledge in understanding not only **potential career opportunities but also basic knowledge about being in a workplace, which is especially important for those with limited prior employment.**[150] Internship participation is also associated with "soft skill" development.[151] Relatedly, WBL can enhance students' ability to define their career goals and pathways, while also increasing their employability and ability to attain a job.[152] In a 2021 randomized field experiment by Baert and colleagues, where the authors sent over 1,000 fictitious resumes in response to job openings, the resumes with internship experiences had a 12.6% higher likelihood of receiving an invitation to interview.
- Internships have led to **career retention in science and technology-related fields**, **particularly among minoritized populations and first-generation students.**[153]
- **WBL participation has been linked to improved academic performance, satisfaction with college, and likelihood of college completion, and some (but not all) studies find evidence that lower-achieving students may benefit the most.**[154] This is important to consider in conjunction with research showing that WBL is less accessible to students with lower prior achievement;[155] it suggests that WBL could prove an effective intervention in supporting academic development.
- Though limited, recent literature has begun to suggest that **WBL improves civic engagement among postsecondary students**, allowing them to develop their intercultural competency and other civic values.[156] A 2022 study by Vogelsang found that internship completion was associated with increased interest among community college students in collaborating with people from different backgrounds.
- Research finds that **students who engage in both social capital-building activities and general career-building activities are much more likely to have career clarity and feel that their education was relevant** in comparison to students who only engage in general career-building activities.[157]
- Participation in **WBL may help students prepare for and push back against future discrimination that they may experience in the workplace** based on their race, gender, or other background characteristics.[158]

---

[149] Thompson et al. (2021)
[150] Cormier et al. (2022); Carnevale & Smith (2018)
[151] Routon & Walker (2019)
[152] Baert et al. (2021); Carnevale & Smith (2018); Collins (2020)
[153] Hruska et al. (2022)
[154] Binder et al. (2015); McDaniel & Van Jura (2022); Routon & Walker (2019)
[155] Binder et al. (2015)
[156] Baker & Johnson (2021); Thompson et al. (2021)
[157] Strada (2021)
[158] Thompson et al. (2021)

What are the outcomes of WBL at the institutional level?

Research suggests that institutions of higher education stand to benefit in a myriad of ways by offering WBL to their students. Benefits include building and sustaining the quality, reputation, and visibility of the institution, both within the local community as well as nationally and internationally.

- High-quality WBL opportunities can **help increase the visibility and reputation of institutions of higher education for prospective students**, serving as a valuable recruiting tool.[159] This can also lead to increased funding opportunities within the institution, further increasing its perceived attractiveness and value.
- Partnerships with local industries for **WBL experiences help to shape curriculum and instruction** in the institutions of higher education.[160] Just as schools can benefit from an expanded and higher-quality CTE curriculum at the PK-12 level, IHEs stand to benefit from offering applied learning opportunities to their students.
- **Offering WBL (particularly paid opportunities) can help institutions of higher education demonstrate that they are meeting not only the learning needs but also employment needs of their students.**[161] Providing paid WBL opportunities may be particularly important in meeting the complex needs of first-generation students who are more likely to come from low-income backgrounds, have to work part time during school, and take out loans.[162]
- A thoughtfully constructed WBL program can **help institutions of higher education align curriculum with the current needs of employers**, demonstrating their role in training the next generation of workforce in their community and state.[163] Furthermore, research suggests that WBL will help IHEs gain in prestige by demonstrating how they actively contribute to their students' meaningful employment following graduation.[164]

What are the challenges or barriers associated with WBL in IHEs?

Research on WBL opportunities frequently considers potential financial and sociocultural barriers to participation.[165] For example, a 2021 study by Hora, Wolfgram, and colleagues found that the most common barriers preventing students from participating in WBL opportunities were the need to work a paid job (60%), academic course load (56%), a lack of positions in their majors or fields (45%), inadequate or no pay (33%), limited transportation (19%), and inadequate childcare (9%). Students may face some of these barriers simultaneously.[166] This section elaborates on these and other challenges and barriers that

[159] Velez & Giner (2015)
[160] Benbow & Hora (2018)
[161] Carnevale & Smith (2018)
[162] Hruska et al. (2022)
[163] Cormier et al. (2022)
[164] Bolli et al. (2021); Wolfgram et al. (2021)
[165] Wolfgram et al. (2021)
[166] Hora, Wolfgram et al. (2021); Hora et al. (2022)

are prominent in the literature.

- **The financial costs of participating in WBL opportunities are a deterrent for some students, particularly when the costs are not offset by compensation.**[167] WBL opportunities frequently necessitate significant financial resources to pay for needed supplies, transportation, relocation costs, and living expenses.[168]
- **Just as it does for PK-12 students, transportation poses a significant barrier to participation for postsecondary students.** Students with no car may be unable to participate in off-campus opportunities inaccessible by public transit.[169] One potential solution is remote internships,[170] but they suffer from demonstrated limitations as detailed previously in this report.
- **Competing time commitments can pose a considerable challenge for participation in WBL opportunities,** including family commitments such as childcare responsibilities,[171] having a heavy course load,[172] and other obligations such as employment to pay for college or support families.[173]
- **Students interested in participating in WBL may sometimes struggle to find opportunities that meet their financial, learning, or other developmental needs.**[174] Some needs-based concerns related to WBL quality include the availability of resources (including compensation), mentoring, and the workplace environment.[175]
- Research shows that **students older than traditional college students (18-24 years old) report their age as an obstacle**, as they tend to have family-related duties and employment obligations.[176]
- Accumulated social capital - including resources, habits, and social networks - is often crucial for access to and participation in WBL.[177] For example, **lack of social networks in industries like finance, banking, law, and marketing has proven to be a constraining factor in WBL participation.**[178]

What are the implications for equity in WBL at the postsecondary level?

Research emphasizes that WBL can prove particularly impactful for postsecondary students from low-income and minoritized racial and ethnic backgrounds when implemented with their needs in mind. This section discusses several equity considerations

[167] Hora, Wolfgram et al. (2021); Hora (2022)
[168] Hora, Wolfgram et al. (2021)
[169] Hora, Wolfgram et al. (2021)
[170] Hora, Lee et al. (2021)
[171] Cormier et al. (2022); Smillie (2021)
[172] Spector & Infante (2020)
[173] Hora, Wolfgram et al. (2021)
[174] Bayerlein & Jeske (2018); Rogers et al. (2021)
[175] Bayerlein & Jeske (2018)
[176] Hora, Wolfgram et al. (2021)
[177] Wolfgram & Ahrens (2022)
[178] Wolfgram et al. (2021)

for postsecondary institutions seeking to meet those students' needs as identified in the literature.

- **Lack of compensation for internships and other WBL opportunities may raise questions about how equitably the institution is supporting its students.** In particular, students from low-income backgrounds may not be able to participate in WBL due to the need to prioritize paid work over unpaid learning opportunities, regardless of how valuable those opportunities may otherwise be to their career development.[179] Internship compensation holds implications for later outcomes as well. For example, gaps in college tenure might be more likely to occur in connection with unpaid internships; such gaps appear to reduce the positive effects of internships.[180] Furthermore, research suggests there are potential long-term implications of compensation: **students participating in paid internships and other compensated WBL may have higher lifetime earnings**.[181]
- **The likelihood that an internship will lead to a job offer may vary both by student's major and hosting organization's sector**. Especially in business and STEM sectors, internships are routinely used as a recruitment and hiring tool.[182]
- **Students from low-income backgrounds are more likely to be first-generation, so that the socioeconomic challenges of participating in WBL are compounded by the unique challenges that first-generation students face**, like unfamiliarity with the availability of resources or opportunities at their colleges.[183] These students are also less likely to participate in paid internships than their continuing-generation peers.[184]
- As is true for their participation in higher education itself, female IHE students have been increasingly more likely to participate in internships than male students overall in recent years.[185] Still, **female students tend to be underrepresented in paid internships** relative to their share of college graduates.[186]
- Additionally, **female students interning in male-dominated fields like STEM or business may experience undue pressure** or a perceived need to work harder than their male counterparts.[187]
- There is mixed evidence on how a student's race or ethnicity relates to participation in WBL, with data showing in some years that Black and Latinx students participate less than their White and Asian peers, while in other years the reverse is true.[188] However, research does suggest that **students from minoritized racial and ethnic groups are more likely to have competing work demands and often enter WBL environments where there are few (if any) colleagues who share their**

[179] Hora, Wolfgram et al. (2021); Shandra (2022); Thompson et al. (2021); Wilson & Mehta (2017)
[180] Routon & Walker (2019)
[181] Torpey-Sarboe et al. (2022)
[182] Moss-Pech (2021)
[183] Strada (2021)
[184] Hora et al. (2019; 2021)
[185] Shandra (2022)
[186] Collins (2020); Hora (2022)
[187] Hora et al. (2022)
[188] Shandra (2022)

backgrounds.[189] Furthermore, racially or ethnically minoritized students are also less likely to participate in paid internships.[190] This presents a potential missed opportunity, as internships can help support students in entering industries where their racial or ethnic group has historically been underrepresented.[191]

- **Students with disabilities may find that internship sites are not always able to accommodate their needs;** this may be especially the case for students with learning disabilities, chronic disabilities, or mental health challenges.[192]
- Research suggests that **students may experience compounding barriers to WBL based on their intersectional identities**, including their race, ethnicity, gender, disability status, socioeconomic status, and first-generation status.[193] In other words, students weighing participation in WBL may find themselves encountering multiple barriers at once, including issues with lack of access, transportation, financial burden, and concerns about lack of belonging or support.

[189] Hora et al. (2022)
[190] Collins (2020); Torpey-Sarboe et al. (2022)
[191] Strayhorn (2020); Thompson et al. (2021)
[192] Akram-Turenne et al. (2022)
[193] Thompson et al. (2021); Wolfgram et al. (2021)

WORK-BASED LEARNING HOSTING ORGANIZATIONS

In addition to the implications of WBL for PK-12 partners and institutions of higher education, research indicates that there are implications for the organizations that host WBL. These may be nonprofit or for-profit entities, government or public organizations, and other sites that support students participating in WBL. Throughout this section, we refer to them generally as "hosting organizations" unless further specified in the cited literature.

Hosting organizations have various reasons for investing in WBL. According to a 2021 survey by the Society for Human Resource Management and U.S. Chamber of Commerce Foundation, 63% of employers view WBL as a return-on-investment, benefiting their talent pipeline and improving overall performance. Additionally, 56% considered WBL to be part of their recruitment strategy, enhancing their competitiveness. Other motivations included improving employee retention (37%), addressing skill gaps (34%), and prioritizing leadership development (28%). However, employers also expressed concern about the readiness of their companies to provide a quality WBL experience. Partnering with schools, colleges, and other career-focused organizations can support employers in building the capacity to develop and sustain WBL opportunities.[194] This section details the challenges, benefits, and outcomes for organizations hosting WBL.

What are the factors affecting the ability of organizations to host WBL experiences?

Access to WBL experiences can be influenced by several different factors that create barriers not only for student participation, but also for employers and other organizations who may potentially serve as hosts.

- **Employers may be concerned about liability risks and insurance costs associated with hosting WBL.**[195] Liability standards and expectations differ among states, regions, and industries. Improved state guidance on labor laws and participation, as well as clarity regarding varying employment laws, are needed to overcome this difficulty.[196] Additionally, it is important to set specific expectations/procedures that align with labor laws and maintain clear communication with educational institutions to ensure compliance.
- **Organizations may lack the infrastructural capacity to take on interns and other WBL students.** This may be due to tight labor market conditions where staff is insufficient to provide the supervision and mentoring required for WBL.[197] Some organizations, especially small businesses with limited resources, may find it

[194] Kazis & Snyder (2019)
[195] Maag et al. (2021)
[196] Maag et al. (2021)
[197] Kazis & Snyder (2019)

difficult to support WBL.[198] Employers may struggle to manage the requirements of WBL programs along with their regular business operations. Partnering with educational institutions, such as colleges, through the federal work study (FWS) program (when available) can provide funding for additional resources.[199] Similarly, there are a number of public workforce training programs through nonprofits, such as Goodwill. Small businesses may be able to partner with these programs to efficiently operate WBL programs.[200]

- **Cost can prevent organizations from offering paid internships and other WBL for students.**[201] Yet, as detailed throughout this report, unpaid WBL opportunities can compound equity issues for female students, low-income students, and students from minoritized racial and ethnic backgrounds. The likelihood that internships will be compensated may also be affected by the labor market. Paid internships occur more often when local unemployment is low and when the local matches the federal minimum wage.[202]
- **Strategies to increase the willingness of companies to participate in WBL may include state supports such as tax incentives.** For example, according to a 2014 report by the Council of Chief State Schools Officers, Missouri provides 50% tax credits to help cover paid internships and apprenticeships for students, and Arkansas offers up to $2,000 in tax credit for each student participating in WBL.
- **Industries and sectors tend to be geographically concentrated, making it difficult for rural communities to offer a variety of WBL opportunities.**[203] Technology firms, for instance, can be concentrated in urban centers, limiting such opportunities for people in rural areas.[204] Employers can overcome this difficulty by forming alliances with trade organizations, promoting cross-industry cooperation, and offering virtual WBL opportunities.[205]

What factors affect the quality of WBL experiences in hosting organizations?

Research suggests that hosting organizations should consider several factors when building and sustaining WBL programs that offer a quality experience for participating students.

- **It is important to pair interns with supervisors who can guide and develop strong relationships with them**. Host organizations should explicitly acknowledge the duties of supervising interns, including reallocating some of the supervisors' regular responsibilities, to allow enough time to build solid connections. Intern-supervisor

[198] Kennedy et al. (2018)
[199] Pickford (2018)
[200] Kennedy et al. (2018)
[201] Society for Human Resource Management & U.S. Chamber of Commerce Foundation (2021)
[202] Jaeger et al. (2020)
[203] Greenfield & Stephens (2018)
[204] Khoury (2022)
[205] Greenfield & Stephens (2018); Khoury (2022)

relationships should be strengthened through activities such as feedback sessions and offering social opportunities for interns and their supervisors to connect.[206]

- Supervisors may be overwhelmed and struggle to balance supervision with their regular workloads. **Group supervision can be an effective technique for addressing these issues by allowing supervisors to better organize their time and allowing students to benefit from shared learning experiences.**[207]
- **Collaboration among educational institutions and hosting organizations is critical for building WBL experiences that cultivate in-demand skills and transferable competencies.** This means establishing a partnership that is mutually beneficial where educators are able to provide opportunities to their students that further their learning and satisfy graduation requirements while employers are able to develop a potential future workforce.[208]
- Research shows that **high-quality WBL environments set clear expectations for participating students, offer real-world and hands-on learning about job requirements, and provide opportunities for networking and mentorship.** Such experiences help to develop the social capital and interpersonal skills that may help students get hired in the future.[209]
- **An internship's design phase is critical to its success.** Applying effective design concepts – such as establishing learning outcomes ahead of time, holding pre-internship meetings to establish performance targets, and promoting peer dialogue among students – adds to the quality of the internship experience. This is especially important for virtual internships, where students may be more likely to work independently.[210]

What are the outcomes for WBL hosting organizations?

Just as benefits accrue to schools and institutions of higher education whose students participate in WBL, there are demonstrated benefits for the organizations that host WBL opportunities.

- Through internships, **employers are able to identify early-career talent and build a skilled employee pipeline.**[211] Both the organization and intern can try each other out and gauge fit with the company, thereby enhancing retention when interns become employees.[212] How students perform during their internship may prove more informative to future hiring decisions than their GPAs or resumes.[213] However,

[206] Rose et al. (2014)
[207] Cleak & Smith (2012); Spector & Infante (2020)
[208] Maag et al. (2021)
[209] Kazis & Snyder (2019)
[210] Ruggiero & Boehm (2016)
[211] Gault et al. (2000); Knemeyer & Murphy (2002)
[212] Maag et al. (2021); The University of Oregon (2021)
[213] Silva et al. (2016)

employers should be careful not to use internships and other WBL opportunities as a source of cheap labor.[214]

- Onboarding student workers through WBL experiences also **benefits employers and other hosting organizations by bringing in new ideas and skill sets**, particularly related to emerging technologies.[215]
- **Employees who mentor students in internships and other WBL opportunities often find that the experience is rewarding and helps them become more effective in their jobs.**[216] In other words, WBL can not only help develop a future workforce for hosting organizations, but also benefit the current one.
- Internships also **allow employers to build a diverse applicant pool and workforce**. Employers can ensure their internship programs recruit diverse candidates by tracking demographics, expanding recruitment efforts beyond a limited set of schools, and working with career centers at IHEs to reach underrepresented groups.[217] Efforts to recruit a diverse intern workforce can also help employers identify and address potential barriers or biases in their hiring processes.[218]
- Lastly, **WBL provides an opportunity for employers to build and strengthen relations within communities, especially IHEs and PK-12 school systems.** Employers are able to share their industry-specific insights and practical experience, while educational institutions contribute theoretical knowledge and research.[219] Students also gain access to mentors who can support them in their career journeys.[220]

What are the implications for equity for organizations hosting WBL?

Considering the equity challenges outlined in the above sections related to PK-12 and postsecondary students, there are also implications for hosting organizations as they seek to offer access to WBL for all students who may benefit from it.

- As noted in the above sections, **students from low-income[221] and minoritized racial or ethnic backgrounds[222] as well as those who are first-generation[223] are less likely to participate in WBL opportunities.** Increasing access to opportunities needs to be a key consideration in how employers and other hosting organizations advertise and offer opportunities (and in their thinking about compensation). Additionally, hosting organizations should be mindful of students' potential competing work demands by

[214] Urquia-Grande & Perez-Estebanez (2020)
[215] Sanahuja Vélez & Ribes Giner (2015)
[216] Spector & Infante (2020)
[217] The University of Oregon (2021); Wingard (2019)
[218] Collins (2020)
[219] Helyer & Lee (2014)
[220] Silva et al. (2016)
[221] Hora, Lee et al. (2021); Hora, Wolfgram, et al. (2021)
[222] Society for Human Resource Management & U.S. Chamber of Commerce Foundation (2021)
[223] Hora, Lee et al. (2021); Hora, Wolfgram, et al. (2021)

providing flexibility in scheduling, particularly if an internship is unpaid.[224] Greater equity of access for WBL participants will support host organizations' efforts to diversify their staff.

- **Relying primarily on conventional channels for recruiting, such as highly-ranked colleges and personal networks, reinforces inequality by leaving out individuals from underrepresented groups and those who attend less "prestigious" institutions.**[225] Such exclusive recruiting procedures can undermine efforts to promote diversity and inclusion.
- **Underrepresented groups may also be disproportionately affected by unconscious biases and discriminatory practices during the hiring and evaluation process.**[226] Unconscious biases of hiring staff against people based on their cultural background can result in inaccurate assessments and obstruct fair placement for internships and WBL opportunities.
- Because remote WBL opportunities can help address access issues for some students, particularly those struggling with transportation[227] or geographic isolation,[228] it makes sense for hosting organizations to offer online options. However, research shows that remote WBL may not always be as high-quality, according to participating students.[229] This suggests that **it behooves employers and other WBL hosting organizations to ensure that online opportunities are as robust and supportive as in-person opportunities for students.**

By proactively addressing these challenges, employers and other hosting organizations can develop sustainable and equitable WBL programs.

[224] Feldman (2021)
[225] Kessler & Low (2021)
[226] Dobbin & Kalev (2016); Kessler & Low (2021); Jaeger et al. (2020)
[227] Hoff et al. (2021)
[228] Bayerlein & Jeske (2018)
[229] Ruggiero & Boehm (2016)

RECOMMENDATIONS

Based on the research analyzed in this report, there are several recommendations for providing high-quality and equitably structured WBL opportunities. While many of these recommendations pertain to specific stakeholder groups, there are also some overarching considerations:

- Generally, research makes it clear that it is important to **take account of both learning theory and labor market perspectives in designing WBL experiences** by incorporating the preparation, guidance, and reflection that are essential for developing the skills, competencies, and networks that will foster success for students and organizations alike.
- It is also important to **encourage active collaboration to ensure that diverse students' needs are being met** and that the interests of different stakeholders within a WBL partnership are represented.
- **Comprehensive and transparent data collection, including disaggregated analysis** to understand WBL participation by student subgroups, types of opportunities, and industries, will be a key component of establishing and monitoring an equitable WBL infrastructure.
- WBL leaders should **draw on the growing literature in states and localities describing best practices** when designing and implementing their own programs.
- At all education levels, remote WBL can help address issues of access. However, **when offering virtual opportunities, it is important to ensure that they are equal in quality to in-person WBL**.

Recommendations for PK-12

Policy

- Whenever possible, **PK-12 school policies should allow for opportunities to participate in WBL during instructional hours**. This can help students with conflicting obligations outside of the school day.
- Considering the fact that WBL can help satisfy graduation requirements, **school divisions should consider allowing these opportunities to be credit-bearing**. This is also consistent with research suggesting that students tend to benefit when WBL is tied to their curriculum.
- School divisions should seek to **address potential concerns for employers and other WBL hosting organizations** (e.g. providing liability insurance or additional on-site supervision when possible) to remove barriers and facilitate successful partnerships.
- If funding is available, **state departments of education and school divisions should consider supplementing wages** through tax incentives so PK-12 students can participate in paid WBL.

- Considering research showing that WBL can provide an engaging experience for students who do not always connect with classroom learning, **school divisions should consider adopting policies that do not set strict GPA requirements for WBL participation.** WBL may prove to be motivational for students who are otherwise underperforming in school.

Practice

- **Communication to students and families about how to access WBL opportunities is critical for establishing an equitable infrastructure within PK-12 institutions.** This communication should come from the state, division, and school level, should be offered at multiple points in the school year and at multiple levels (e.g. elementary, middle, and high school), and should offer particular outreach to students and families who are historically underrepresented in WBL programs.
- Research suggests that students from minoritized racial and ethnic backgrounds may benefit from partnerships with WBL mentors who come from similar backgrounds. Whenever possible, **schools and partnering organizations should consider how to facilitate these connections in WBL settings**.
- Research repeatedly shows that access to transportation to and from WBL sites is a key equity concern, particularly for low-income students. Whenever possible, **schools should partner with WBL hosting organizations to provide transportation**.
- Schools should communicate with hosting organizations to **help address potential misconceptions about the abilities of students with learning, intellectual, or developmental disabilities** who may benefit from WBL opportunities.

Future Research

- Researchers should **explore the long-term impact of PK-12 student participation in WBL** in terms of success in their college major, likelihood of participating in future WBL, and employment. This would build on research suggesting that postsecondary students participating in paid WBL tend to have higher lifetime earnings.
- There is an opportunity to **learn more about how PK-12 institutions partner most effectively with institutions of higher education to provide WBL experiences** for their students, including potential mentoring connections between students at both levels.

Recommendations for institutions of higher education

Policy

- Research shows that high-quality WBL programs tend to be more readily available to students at more "prestigious" postsecondary institutions. **Policymakers should consider how to support robust WBL programs at all IHEs in the state, including potentially offering supplemental funding to those who do not yet have the infrastructure established.**
- Similarly, it appears that WBL is more likely to be available to students in four-year institutions. **Higher education policy should make a concerted effort towards funding high-quality WBL for two-year college students** who may similarly benefit.
- Research repeatedly indicates that low-income students, female students, and students from minoritized racial and ethnic backgrounds are less likely to participate in paid internships and other WBL opportunities than their peers. To address this, **IHEs should establish policies whereby students from these underrepresented groups have equal opportunities to be paid for their work**.
- **Policies supporting the expansion of WBL across a state should consider evidence about where such opportunities are least available** (e.g. rural areas) and make concerted efforts to establish partnerships to ensure that students have sufficient access, regardless of their geographical location.

Practice

- IHEs should routinely reflect on disaggregated data depicting how participation in WBL (paid and unpaid) varies by student demographics and then **use targeted recruitment to attract students who are underrepresented in these programs.**
- **IHEs should consider how they can best pair students with faculty and staff mentors on campus** who can supplement their experiences on the work site from a curricular standpoint and further support their career planning and development.
- **IHEs should promote access to WBL opportunities across majors**, considering research suggesting that they tend to be less readily available for students in social sciences and humanities than they are for those majoring in STEM, business, and finance.
- **First-generation college students may be in particular need of targeted support from IHEs to identify and address barriers to WBL participation.** Barriers may include a greater need to work for pay in addition to taking classes, lack of social capital, and unfamiliarity with WBL opportunities as well as how to pursue them.
- **It may be particularly important for IHEs to seek out ways to ensure that their students receive pay for their participation in WBL.** This is in consideration of both the rising costs of college attendance as well as the lower likelihood of low-income students, female students, and students from minoritized racial and ethnic minority backgrounds to participate in paid WBL.
- **IHEs should reflect on the degree to which they are helping students establish networks and contacts through WBL opportunities** that provide social capital for

potential future employment. Research suggests that this is particularly important for students who may be less likely to already have these established networks, especially those from low-income and minoritized racial and ethnic backgrounds as well as first-generation students.

Future Research

- Perhaps the most prominent recommendation for future research would be to **turn more attention towards WBL in two-year colleges**. The information synthesized in the IHE section of this review overwhelmingly comes from research focused on the experiences of students in four-year colleges. This apparent gap in the research could also be indicative of WBL being less available in two-year college settings.
- **Virtual or remote WBL is an emerging field in need of additional research**, particularly given its recent growth in popularity and evidence that the quality of online opportunities may not always be as high as the in-person counterparts. Considering how these WBL opportunities could help address enduring issues of access, it is important to collect more evidence about how to run them effectively.

Recommendations for WBL hosting organizations

Policy

- State policies seeking to support WBL should specifically **target expansion and strengthening of opportunities in prominent industries that have demonstrated need for workforce expansion,** particularly social sciences, arts, and humanities that tend to be underrepresented in WBL. They should also consider the unique needs of hosting organizations in remote areas where it can be difficult to access students.
- Existing funding sources (e.g. government grants) or **new funding streams could help supplement the costs for hosting organizations of offering paid WBL opportunities for students**. The lack of funding to support the wages of student workers can be a deterrent for organizations who may otherwise choose to host WBL. Funding could also be supplemented at the state policy level (e.g. through tax incentives).
- It is important for policymakers to **review and update existing labor laws throughout the state to clarify how hosting organizations can approach WBL, particularly if the opportunities are unpaid.** While unpaid and paid internship opportunities are both valuable, there is also a need to ensure that WBL is not treated as a source of cheap labor.
- **Business-friendly policies at the state level could help to bolster WBL** as employers and other hosting organizations often cite lack of staffing as a barrier for providing sufficient supervision and mentoring for participating students.

Practice

- Hosting organizations and partnering institutions of higher education should **take advantage of existing funding streams like the Federal Work Study (FWS) program** to help provide WBL opportunities while defraying some of the costs.
- It is important for hosting organizations to **make concerted efforts to ensure that their employees who will be supervising WBL are sufficiently trained in how to provide thoughtful mentoring** that nurtures the development of participating students. Research repeatedly emphasizes that mentoring is central to students' evaluation of the overall quality of their WBL experiences. Equal or even greater attention to mentor training should be given when WBL opportunities are online.
- When hosting WBL students, **organizations should work to ensure that they have opportunities to engage in hands-on experiences that authentically represent the expectations of the industry.** This leverages a demonstrated strength of WBL and is a key component of how students evaluate the overall quality of their experiences. Additionally, organizations should provide opportunities for students to engage in networking to establish contacts within their industry.
- Hosting organizations should **seek out diverse talent pools by partnering with a wide range of educational institutions**, including community colleges and minority-serving institutions, HBCUs, and other schools with diverse student populations as well as nonprofits that connect students from underrepresented groups to WBL opportunities.
- Hiring managers and recruiters should participate in training that helps them recognize and address their own unconscious biases that may play a role in how they offer WBL opportunities to students. **Using structured and unbiased selection processes, such as blind resume reviews or diverse selection committees, can mitigate biased hiring practices** and ensure equitable opportunities for candidates from diverse backgrounds.

Future Research

- It will be helpful for future research to more fully assess the quality of remote WBL opportunities in comparison to in-person WBL, particularly given recent trends and its potential for addressing access issues. Hosting organizations especially could benefit from a set of **best practices for establishing high-quality, online WBL and recommendations for infrastructure.**
- Much of the research summarized in this section of the report focuses on what organizations need to consider when hosting WBL opportunities for PK-12 and postsecondary students. Future research should **focus on providing evidence through evaluation of the effectiveness of WBL in fulfilling the needs of hosting organizations** as well as the students participating in them.
- Finally, it appears as though the perspectives of employers and other hosting organizations are underrepresented in the WBL literature relative to the students participating in these opportunities. **Future research should focus on better understanding the perspectives of WBL hosting organizations**, including the

barriers they perceive (particularly in underrepresented industries), the policies that support the expansion of WBL, and the recommendations they offer for best practices in creating and maintaining a robust and equitable program.

REFERENCES

Click here or scan the QR code
to access the full reference list for this report.

APPENDICES

Appendix A. The value of collaboration among stakeholders

Researchers have approached the challenge of implementing WBL from a variety of standpoints – the demands of the labor market, the importance of equipping students for careers and life, and policy perspectives – but all agree on the need for greater collaboration among different sectors and stakeholders. Collaboration by stakeholders across domains can help to:

- **Define standards for high-quality WBL experiences that address the access and experience needs of a diverse set of students**, and develop and promote guidance to ensure those needs are met.[230]
- **Improve the design of WBL experiences to address student needs and to promote skill development that meets industry needs**;[231] coordinate opportunities and communicate their availability so that students at all levels can smoothly access WBL.[232]
- **Ensure that the knowledge and interests of the full range of institutional stakeholders are represented** in the development of policy for connecting work and education. Stakeholders include government agencies, legislatures, business and industry, PK-12 and higher education, and of course, students.[233]
- **Support regional economic and educational systems by integrating regional stakeholders into collaborative design and decision-making efforts** related to WBL, and ensuring that frequent communication occurs both within and across networks. Consider alignment of postsecondary credentials with regional workforce needs.[234]
- **Develop infrastructure for data collection and analysis, and actively use data** to inform the design of WBL initiatives, assessment of their effectiveness, and related policy.[235]
- **Center funding on shared goals and outcomes rather than on individual programs, and promote access to funding** in contexts other than business and education settings (such as through public assistance offices and community centers).[236]

---

[230] Hora, Wolfgram et al. (2020); Robson et al. (2021); Smillie (2021)
[231] E.g. Maertz et al. (2014); Hora, Wolfgram et al. (2020); Fuller & Raman (2022); Jackson & Bridgstock (2021)
[232] Robson et al. (2021)
[233] Pechota et al. (2019), p. 4; Robson et al. (2021); JFF & The Policy Leadership Trust (2022)
[234] Pechota et al. (2019); Smillie (2021)
[235] Pechota et al. (2019); Smillie (2021)
[236] Pechota et al. (2019)

Appendix B. The need for comprehensive and transparent data

Many scholars and advocates have lamented the fact that the literature on WBL is limited by a lack of comprehensive data and methodologically rigorous research.[237] Factors complicating the task of data collection include

- the variety of institutional actors, sectors, and interests involved;
- the decentralized nature of educational systems, especially within the United States;
- the fact that WBL can occur at multiple levels, for students within elementary, secondary, post-secondary, and graduate institutions, and for those not engaged in programs of study;
- the many types of WBL that can occur;
- the lack of infrastructure for collecting systematic data;
- and the lack of definitional consistency or even consensus relating to types of WBL.

Studies of participation in WBL and associated outcomes are often limited to a single institution of higher education, making it difficult to generalize the findings, and the range of countries in which WBL has been implemented and studied, with different designs and requirements, creates further challenges for comparability and generalizability.

Even when data are collected, they may not be disaggregated to assess equitable access and participation (e.g., by race, gender, socioeconomic status, first-generation status, disability status, college major, etc.) or used to inform decisions about WBL.

Further, **much of the research has focused on students at four-year institutions, with limited study of the effects of WBL among high school or community college students.** For high school students in the U.S., for example, as of 2021:

> Just 20 states collect comprehensive data on work-based learning participation, including student outcomes. Eleven states are able to disaggregate that comprehensive data to identify trends in work-based learning participation. Just two states have processes in place to use disaggregated data to inform work-based learning program improvement at a state level.[238]

Similarly, only scant research has addressed the challenges of participating in internships for students at community colleges,[239] perhaps in part stemming from the colleges' likely need for support from education and workforce organizations to help them collect, link, and analyze their data.[240] Further, data on WBL participation and experiences by hosting organizations is limited.

---

[237] Advance CTE: Measuring WBL (2016)
[238] Robson et al. (2021), p. 15.
[239] Lucero et al. (2021)
[240] Cormier et al. (2022)

Linked education, workforce, unemployment, and wage data from state longitudinal systems are an important but underutilized tool for identifying workforce needs and guiding the development of WBL programs.[241]

In summary, carefully collected, disaggregated, and linked data can provide important support for WBL initiatives, by

- illuminating gaps in or needs for WBL;
- contributing to informed design of WBL experiences;
- assessing the ways in which particular practices or policies enhance or inhibit access for groups of students, types of employers, or communities;
- and contributing to identification of best practices.[242]

[241] Hora (2022)
[242] Lucero et al. (2021), p. 113; JFF & The Policy Leadership Trust (2022)

Appendix C. What are different types of WBL experiences, and what distinguishes them?

We include below a brief review of various forms of WBL, focusing mainly on those most frequently available to students pursuing formal studies in PK-12 through postsecondary education; we indicate differences when experiences are designed for secondary school or younger students. We do not include the activities listed under *Career Exploration* in Table 2, nor do we attempt to cover all activities listed under *Career Exposure* or *Career Experience* in that table. The descriptions provided for different forms of WBL are not intended to be definitive, but rather to capture elements frequently associated with each, and to point to commonly-referenced definitions where possible. We note that individual states often have their own definitions, developed as part of legislative or school-based efforts to promote WBL.[243]

Career Exposure

Career preparation in the U.S. has until recently been the purview of career and technical education programs, reflecting an assumption that only students not on academic tracks needed such preparation. Such programs served students poorly, often preparing them for jobs that did not allow for upward mobility and did not meet workforce needs.[244] Redesigned career preparation programs are now intended to incorporate academic rigor as well as pathways to jobs and careers that pay well and reflect labor market needs.[245] Increasingly, however, WBL that involves career exposure is being incorporated more generally into elementary and secondary education.[246]

- **Job shadowing** refers to a short-term experience of one to several days[247] during which students are paired with a professional to observe and talk with them as they go about their work. In contrast to many other forms of WBL, students do not directly participate in the work activities, but are able to experience the setting and the nature of the work with a particular employer or industry.[248] Shadowing can also be part of a strategy to increase exposure to and integration into an organization for students participating in online internships.[249] Externships may be an extended form of job shadowing.[250]

- **Mentorships** refer to long-term relationships between a student and a professional within a field or occupation. The professional provides guidance, support and

[243] Wilson & Mehta (2017)
[244] CCSSO (2014)
[245] CCSSO (2014)
[246] Maag et al. (2021)
[247] Ross et al. (2018)
[248] JFF WBL Glossary (n.d); VDOE, HQWBL Guide (2022)
[249] Irwin et al. (2021), p. 642.
[250] VDOE, HQWBL Guide (2022)

encouragement, resources, and can serve as a role model for the student.[251] These types of mentorships often occur at the high school level. Mentoring can also be part of an internship experience, where the participating student is assigned a mentor within the organization hosting the internship, who provides support and guidance.[252]

- **Near-peer mentorships** may provide complementary experience for undergraduate or graduate students who are participating in both a teaching internship and a research internship.[253]

- **Service learning** experiences provide opportunities for students to contribute to a cause and community and can promote personal development.[254] While these opportunities may allow students to apply and develop work-related skills, the experiences are not intended to provide training for specific jobs; they may be tied to the curriculum[255] but are not necessarily linked.

- **School-based enterprises** are student-managed operations within elementary, middle, or secondary school settings that provide goods or services to the school community through a physical location or website.[256] Such opportunities can allow students to develop employability, management, and leadership skills, and can provide exposure to related careers.[257]

Career Engagement

- **Clinical experiences or placements**, like practicums (see below),[258] are opportunities for students in health and medical sciences courses to observe patients in healthcare settings in order to develop their understanding of healthcare professions.[259]

- **Cooperative education** (or co-op) refers to formal academic programs that incorporate structured work experiences designed to develop participants' professional or technical skills, and may involve a contractual arrangement by a university and employer.[260] Participants in such programs may be paid and/or earn academic credit.[261] At the middle or high school level, cooperative education may consist of paid opportunities that correspond to students' interests and career goals

---

[251] E.g. VDOE, HQWBL Guide (2022)
[252] Ross et al. (2018)
[253] Tenenbaum et al. (2014)
[254] VDOE, HQWBL Guide (2022)
[255] E.g. VDOE, HQWBL Guide (2022)
[256] E.g. JFF WBL Glossary (n.d.); VDOE, HQWBL Guide (2022)
[257] E.g. VDOE, HQWBL Guide (2022)
[258] Gallagher et al. (2019)
[259] VDOE, HQWBL Guide (2022)
[260] Hora et al. (2017); JFF WBL glossary (n.d.)
[261] JFF WBL glossary (n.d.); Gallagher et al. (2019)

and connect CTE classroom instruction to practical experience in a work setting.[262] At the postsecondary level, co-ops are often part of professional programs; students may alternate periods of academic study with periods of work experience, or combine both part-time during the same period.[263]

- **Internships** involve short-term placement in a workplace setting where students apply academic knowledge to practical tasks in real-world environments, ideally developing career-related skills, networks, and knowledge aligned with their own interests and goals.[264] *Traditional internships* integrate students into a physical workplace, where they engage in face-to-face interactions that promote professional growth, the development of communication skills, and the ability to receive guidance,[265] typically over the course of several months.[266] Internships should develop and build upon the skills and knowledge students have learned in the classroom;[267] an emphasis on student learning is central to many contemporary definitions of internships.[268]

  Internships "come in all shapes and sizes."[269] The NACE definition of an internship is widely used, although it has been described as "more aspirational than descriptive," given wide variation in the actual degree of experiential learning and support for social capital and network development provided:[270]

  > An internship is a form of experiential learning that integrates knowledge and theory learned in the classroom with practical application and skills development in a professional setting. Internships give students the opportunity to gain valuable applied experience and make connections in professional fields they are considering for career paths; and give employers the opportunity to guide and evaluate talent.[271]

  Specific elements of internship design recommended by NACE and others include an emphasis on transferable skills; clearly defined time limits for the internship; a job description identifying necessary qualifications; clear goals or learning objectives; supervision by a professional in the field who provides feedback to the

[262] JFF WBL glossary (n.d.)
[263] Ross et al. (2018); Cooperative Education and Internship Association (2022); Gallagher et al. (2019)
[264] Bayerlein & Jeske (2018); NACE position statement (2018); Hruska et al. (2022); Hora et al. (2019). Language differences introduce further complications: in the United Kingdom and Australia, the term "placement" is often used to denote an internship-like experience (Binder et al., 2015)
[265] Bayerlein & Jeske (2018); Silva et al. (2016)
[266] JFF WBL Glossary (n.d.)
[267] JFF WBL Glossary (n.d.); VDOE, HQWBL Guide (2022)
[268] NACE position statement (2018)
[269] Hora, Lee et al. (2021), p. 3.
[270] Hora, Parrott et al. (2020)
[271] NACE position statement (2018)

student; resources and facilities provided by the hosting organization,[272] and guided reflection to promote learning.[273]

Internships include experiences that are paid and unpaid, for-credit and not-for-credit, and that differ in duration. Other factors influencing quality are the nature of the tasks performed, the degree of mentoring, follow-up by the student's institution, etc.; scholars have identified 11 different dimensions along which internships can vary.[274] At the high school level, individual states may specify a minimum number of hours for the experience to qualify as an internship or for the student to receive credit.[275]

Paid internship experiences are governed by the Fair Labor Standards Act (FLSA), which specify minimum wage and overtime payment.[276]

- **Micro-internships** are short term, paid, remote experiences in which college or graduate students work on a project for between 5 and 40 hours,[277] typically during the school year while they are in student housing.[278] Companies use the project products, which can include market research or financial analysis. As is the case for students participating in traditional internships, micro-interns can receive job offers for permanent positions.

- **Online or e-internships** (also referred to as virtual or remote internships, tele-working, or telecommuting) are also placements into a real work environment, but the interactions between student and employer are entirely mediated by technology,[279] potentially diminishing the opportunities for learning through informal interactions.[280] Computer-mediated internships flourished as a result of the COVID-19 pandemic.[281] Advocates have touted online internships' flexible nature, ability to connect interns and employees regardless of geographic location, and their potential for facilitating internships' diversity and inclusiveness.[282] Since they are a recent development, however, there is relatively little research to guide their implementation.[283] Researchers have rightly pointed out that all of the characteristics of traditional internships that influence the quality of the experience for students apply equally to e-internships.[284] Moreover, online internships present many of the same challenges associated with remote work, including access to

[272] NACE position statement (2018)
[273] JFF WBL Glossary (n.d.)
[274] Maertz et al. (2014); Hora, Wolfgram, et al. (2020) consider many of these features in more detail.
[275] E.g. VDOE, HQWBL Guide (2022)
[276] VDOE, HQWBL Guide (2022)
[277] Hora, Lee et al. (2021)
[278] The University of Oregon (2021); Wingard (2019)
[279] Hora, Lee et al. (2021); Irwin et al. (2021)
[280] Bayerlein & Jeske (2018)
[281] Hruska et al. (2022); Hora, Lee et al. (2021)
[282] Rivera (2021)
[283] Torpey-Sarboe et al. (2022)
[284] Hora, Lee et al. (2021); Torpey-Sarboe et al. (2022)

technology and the internet as well as work-life balance. Training and support for both employers and institutions of higher education is essential in order to promote equity of access and ensure quality.[285]

- A **practicum** is a placement at a work site where students carry out some tasks but also observe the work of professionals; practicums may be similar to clinical placements in healthcare and clinical psychology, and are also common in law.[286] Practicums may be a part of academic courses that provide background and promote assimilation of the practicum experience.[287]

- **Rotational internships** allow students to rotate through various departments and roles within a host organization, increasing their exposure to a range of activities that may help them identify relevant skills and interests.[288]

- **Simulated internships** place students in a simulated, virtual work environment within an educational institution to engage in a work project, sometimes as part of a team of interns.[289] Simulated internships can support students well in learning to apply their knowledge to workplace situations, especially when the students are not ready for real work environments,[290] but that support comes at the cost of authenticity.[291]

- **Sprinternships** are internships for postsecondary students that involve a short-term commitment on the part of the student and employer, but can lead to either a paid longer-term (e.g. summer) internship or a job offer.[292] Sprinternships may be virtual and can appeal to smaller companies, who may have difficulty competing with national organizations in attracting students. They can also appeal to students at less "prestigious" colleges, who may have difficulty competing successfully for longer-term internships.[293]

- **Student teaching** placements are designed for pre-professional or pre-service teachers. They allow students to gain classroom experience, often while working with a mentor teacher. These placements typically conform to professional certification requirements and state guidelines.[294]

- **Transformed federal work-study opportunities** represent a strategy for increasing and enhancing internship-type opportunities and developing students' career

[285] Hora, Lee et al. (2021)
[286] Gallagher et al. (2019)
[287] Hora et al. (2017)
[288] The University of Oregon (2021)
[289] Bayerlein & Jeske (2018); JFF WBL Glossary (n.d.)
[290] JFF WBL Glossary (n.d.)
[291] Bayerlein & Jeske (2018)
[292] Fain (2021)
[293] Fain (2021)
[294] Hora, Lee et al. (2021)

readiness.[295] The Federal Work-Study (FWS) program helps to fund part-time employment for students as part of a financial aid package through on-campus (and in some cases, off-campus) jobs, but the jobs have not tended to be closely connected to students' career goals and course of studies.[296] By transforming these opportunities to maximize their alignment with majors, enhance the work-related skills students can gain from them, and increase students' awareness of their own learning, these positions can provide valuable opportunities for WBL.[297] In fact, there is evidence that even under the current system, students with FWS jobs that were related to their field of study showed higher rates of college completion and post-graduation employment compared to other students whose FWS jobs were not related to their field.[298]

Career Experience

- **Apprenticeships** are paid positions,[299] sometimes referred to as "earn-and-learn" programs,[300] usually designed to provide "employment on-ramps" to specific careers and to address specific gaps in skills.[301] They often involve earning of credentials important for employment in an occupation or industry,[302] and in some industries, they can provide a level of background and experience equivalent to a college degree.[303] They are generally full-time positions in which students earn wages, and while they may involve classroom instruction,[304] such instruction is ordinarily part of the apprenticeship program itself and closely tied to the skills needed and credentials earned, not part of a broader program of studies. Although apprenticeships are more prevalent in Europe, they have taken hold in the construction and manufacturing sectors in the U.S,[305] and some public sector apprenticeships are available.[306] Internships and apprenticeships are occasionally treated as similar or the same,[307] but most researchers consider them different forms of WBL – in particular because, in contrast to internships, apprenticeships are often regulated (see Registered apprenticeships, below).

- **On-the-job training** programs may serve as first jobs in an industry or pathways to advancement for employees with a current employer. These are paid positions, lasting no more than six months, that employees hold while they complete training

[295] Akos et al. (2021)
[296] Baum (2019)
[297] Carnevale & Smith (2018); Akos et al. (2021)
[298] Baum (2019)
[299] Wilson & Mehta (2017); JFF WBL Glossary (n.d.)
[300] Hora et al. (2017); Chicago Apprentice Network (n.d.)
[301] Elliott et al. (2021); Hora et al. (2017)
[302] Wilson & Mehta (2017)
[303] Manzo et al. (n.d.)
[304] Wilson & Mehta (2017)
[305] Wilson & Mehta (2017); Manzo et al. (n.d.)
[306] Elliott et al. (2021)
[307] E.g. Wan et al. (2013)

designed to prepare them for a job or occupation with the same employer. Successfully completed training should lead to a full-time job.[308]

- **Pre-apprenticeships** are intended for young people and adults to prepare them prior to enrolling in an apprenticeship.[309]
- **Registered apprenticeships** are a specific, regulated subcategory of apprenticeships;[310] they must be approved by the U.S. Department of Labor or by a state apprenticeship agency.[311] The regulation process ensures quality and provides for apprenticeship durations of one to six years.[312]
- **Transitional jobs** are intended for participants who face barriers to employment. These jobs are designed to provide time-limited exposure to work settings, opportunities to develop employability skills, and the start to a successful work history.[313]
- **Youth apprenticeships** serve young people aged 16–24 and are typically paid experiences that include both work and technical instruction.[314] Some groups identify youth apprenticeships as designed specifically for high school students, however.[315] These opportunities may combine high-school CTE education with on-the-job training.[316] Youth public sector apprenticeships are available in some states, intended in part to mitigate skill gaps (e.g., in automotive technology, education, and building maintenance), and can involve a combination of high school coursework, work, and college-level course-taking.[317]

[308] JFF WBL Glossary (n.d.)
[309] Wilson & Mehta (2017)
[310] Wolfgram & Ahrens (2022)
[311] Wilson & Mehta (2017); JFF WBL Glossary (n.d.)
[312] JFF WBL Glossary (n.d.)
[313] JFF WBL Glossary (n.d.)
[314] JFF WBL Glossary (n.d.); Wilson & Mehta (2017)
[315] E.g. Education Commission of the States (2021)
[316] E.g. VDOE, HQWBL Guide (2022)
[317] Elliott et al. (2021)

What can we learn together?

merc.soe.vcu.edu