

Delivering Work-Based Learning for Rural, Low-Income Adults: Promising Practices and Indicators of Success

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Table of Contents

Introduction..... 3

Definitions..... 4

Literature Review 5

 The Rural Workforce..... 5

 WBL Overview 5

 WBL Continuum.....6

 WBL Typologies..... 7

 Where Does WBL Happen?.....9

 WBL and Credentials..... 9

 Barriers and Promising Practices 10

 Barriers.....10

 Promising Practices.....11

 Outcomes and Indicators in WBL Programs.....14

Further Research 19

Conclusions..... 19

Promising Practices Indicators to Measure Work-Based Learning Programs for Rural, Low-Income Adults

The signing of the Workforce Innovation and Opportunity Act (WIOA) in 2014 and Strengthening Career and Technical Education Act (Perkins V) in 2018 signaled national recognition of the need to close skill and opportunity gaps to meet modern labor demands. One way Perkins V and the WIOA attempted to close these gaps was through providing funding, guidance, and design criteria for work-based learning (WBL) programs serving youth and adults, particularly for those from low-income backgrounds. Research suggests WBL is valuable to achieving learning outcomes. However, there is little guidance on *which* outcomes, *how* they should be measured, and *which* practices programs should implement to ensure those outcomes.

WBL refers to educational experiences in authentic work environments. For adults, WBL experiences include apprenticeships, internships, on-the-job training, and transitional jobs among others in actual workplaces and simulated workplaces. These experiences can be sponsored through partnerships between workforce development providers, federal and state agencies (such as the Department of Labor), community colleges and universities, and workplaces. According to Leventoff (2018a) and Xing et al. (2019), WBL is a “nontraditional” pathway to earning a postsecondary credential and work experience, which are seen as necessary to get a good paying job. Businesses providing the work experience of WBL also benefit. Jobs for the Future (2020) reports that employers sponsoring WBL programs increase productivity, experience fewer performance problems, spend more time on innovation, double employee engagement, and bring in more diverse workers.

Despite federal, state, local and private funding, and support of WBL programs, little research exists on WBL for low-income adult learners from rural backgrounds. Rural areas in America make up 97% of the country's land mass and contain 20% of the population (Ratcliffe et al., 2016). Most of the workforce research is on urban settings, where employers, educational institutions, and infrastructure is considerably different from those in rural settings. This lack of research means that there is little guidance on the WBL practices (strategies, components, design etc.) that are most effective in supporting rural, low-income adult learners. This gap in knowledge brings this researcher to the following research question: What are the promising practices that effective work-based training programs use to support rural, adult learners from low-income backgrounds and how are they assessed?

This paper has four sections organized by four objectives. It is intended to 1) provide funding organizations with an overview of WBL for low-income, rural learners; 2) identify promising practices in WBL programs serving rural, low-income adult learners; 3) specify indicators to assess WBL program effectiveness; and 4) explore additional areas for further research and evaluation.

Definitions

WBL	According to the U.S. Department of Education’s National Center for Innovation in Career and Technical Education, WBL is “the alignment of classroom and workplace learning; application of academic, technical, and employability skills in a work setting; and support from classroom or workplace mentors” (2017). WBL programs are also referred to as “work experience programs” and “work-based training programs”. WBL can be an aspect of a program, such as a clinical rotation for a nursing program. A more general definition this author proposes is educational experiences in authentic work environments.
Rural	The U.S. Census does not technically define the term “rural”. Instead, the Census defines rural as “areas that include all geographic areas that are not classified as urban” (2020, p. 2). Urban areas are either urbanized areas containing 50,000 or more people or urban clusters, which have between 2,500 and 50,000 people (U.S. Census 2020).
Adult learner	The Southern Regional Education Board defines “adult learners” as adults typically aged between 25-65 years old who have not taken the traditional route to postsecondary education (2020a). Adults younger than 25, who take on adult responsibilities such as child or elder care, may also be considered as “adults”. As this literature review is on WBL, adults over the prime working age of 65 are not included in this definition (Myers et al., 2014). Please note, not all of the literature presented in this paper defines “adult” the same way. For example, the U.S. Census defines “adult civilian persons” as those ages 18 and over (U.S. Census Bureau, 2018). However, a majority of relevant statistical measures included in this report from the U.S. Census and the National Center for Education Statistics only had data on workers 16 and over.
Post-Secondary	Post-secondary refers to education attained after high school.

Literature Review

The Rural Workforce

Rural areas make up 97% of the country's land mass and contain 20% of the population, about 63 million people (Ratcliffe et al., 2016). There is little literature on what works in rural areas for low-income adults. The U.S. Census defines rural as “as any population, housing, or territory not in an urban area” (Ratcliffe et al., 2016, p. 3). The few studies and reports on upskilling the rural workforce describe rural communities in terms of deficiencies, rarely acknowledging the strengths and benefits of rural communities. These deficiencies are usually described as inherent, without analysis of the impact of policy, state defunding, and the closure of public services and institutions.

Efforts to upskill the workforce have typically ignored the role of *place* in education initiatives. Modern education practices seek to standardize educational content for students across the United States. This approach, while easier to evaluate and compare student progress, fails to recognize the place-based realities of students (Gruenewald, 2003, Yeo, 2001). Curriculum focused on producing knowledge workers for companies based in urban areas encourages rural students to seek employment away from home (Woodrum, 2004).

Outmigration of working-age adults negatively impacts the rural community. From 2000 to 2016, rural areas lost 11% of their prime-age (25-54 years old) working population, while suburban and urban prime-age working populations grew (Parker et al., 2018). Outmigration of the working population can undermine tax and consumer bases, leading to fewer public services in rural communities, including quality primary and secondary education (Cromartie et al., 2015). Without public services and a skilled workforce, companies are even further disincentivized to create jobs in rural areas (Koricich et al., 2018; Green, 2005). The absence of employers and intermediaries (unions, workforce development agencies, etc.) means rural youth are often forced to migrate to cities to enter the workforce or attend college (Petrin, et al., 2014; Woodrum, 2004; Cahill, 2016; Green, 2005). This can be especially prohibitive for low-income adults, who may not have the money, transportation, or support to relocate (Koricich et al., 2018). WBL, provided by community colleges, local businesses, and workforce development boards could help reduce outmigration through paid work experiences that lead to employment in the local community.

Where are the jobs?

According to the U.S. Census, an estimated 22.5% of employed adults in rural communities work in the educational, health care, and social assistance industry (2019a). This estimate is much higher than the second most popular industry, manufacturing, at 13%.

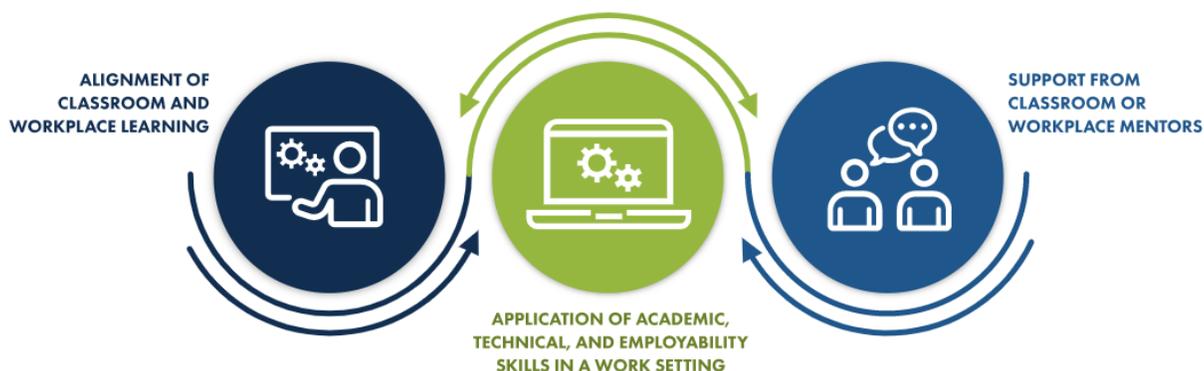
WBL Overview

The National Skills Coalition (2017) reports that 53% of jobs are considered “middle-skill”, requiring more than a high school diploma, but less than a bachelor’s degree. By this definition, “middle-skill” can also describe jobs in healthcare, IT, software, and manufacturing. These jobs, usually vocational or occupational, are highly-skilled and highly-paid (National Skills Coalition, 2020). Yet, only 43% of workers are prepared for these jobs. This is known as

the “skills gap”. Current research focuses on how to fill skills gaps with training and education programs targeted to adult workers, particularly those that are from low-income backgrounds. WBL is seen as one of the programs to fill in those gaps.

The Perkins Collaborative Resource Network defines WBL as “the alignment of classroom and workplace learning; application of academic, technical, and employability skills in a work setting; and support from classroom or workplace mentors” (2017). This definition is further depicted in Figure 1. The Association for Career and Technical Education (ACTE) considers WBL as one of the twelve elements of high-quality CTE programs (Imperatore & Hyslop, 2018). WBL can be the basis of the entire learning experience, such as a welding apprenticeship. WBL can also be one element of a learning experience, such as an internship for public health students. WBL is commonly described as “hands-on” and “experiential” in nature, so students can contextualize their learning within an actual workplace.

Figure 1
WBL Framework



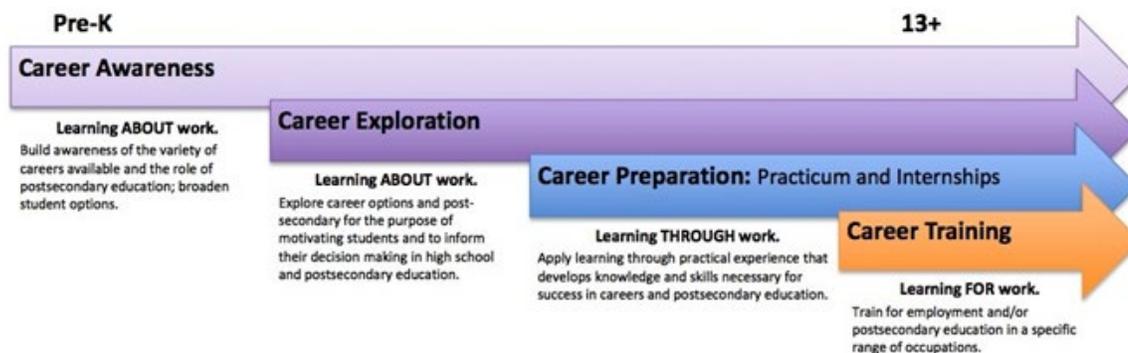
Note: From *WBL Framework*, by the Perkins Collaborative Resource Network, U.S. Department of Education (<https://cte.ed.gov/wbltoolkit/background.html>).

WBL is a common element of education programs from middle school through college. As learners increase their educational attainment, the more likely they are to have participated in a work experience program. In fact, those with a graduate or professional degree have completed twice as many work experience programs than those with an associate’s degree and more than four times than learners with some college, no degree (National Center for Education Statistics, 2016c).

WBL Continuum

WBL experiences typically proceed along a continuum, becoming more intensive and “high-touch” as a learner progresses through school. Referred to in Figure 2, the continuum has four stages, career awareness, career exploration, career preparation, and career training (Ross et al., 2020; Southern Regional Education Board, 2020b; Linked Learning, 2012; Cahill, 2016). This paper focuses on “career training”, the last stage in the continuum. In this stage, adults demonstrate their career readiness through authentic work experiences. These work experiences may lead to long-term employment, a post-secondary credential, or both.

Figure 2
WBL Continuum



Note: From *WBL in linked learning: Definitions, outcomes, and quality criteria*, by Linked Learning, 2012, p. 20. (<https://connectednational.org/learn/key-resources/work-based-learning/>)

WBL Typologies

The literature identifies eight broad types of WBL for adults that fit within the “career training” stage of the WBL continuum. Although not exhaustive, the list reflects descriptions of WBL by the WIOA and Jobs for the Future.

Apprenticeships. Apprenticeships are the most recognized and regulated form of WBL. Apprenticeships are usually between one to six years of on-the-job training (OTJ) and classroom instruction (Cahill, 2016, p. 8). Apprenticeships are typically paid opportunities, as they are a full-time job. The Department of Labor (DOL) uses WIOA funds to support two apprenticeship programs, Registered Apprenticeship Programs (RAPs) and Industry Recognized Apprenticeship Programs (IRAPs), the latter of which are found in industries such as IT, financial services, energy, and advanced manufacturing (Discover Apprenticeship, 2020a). RAPs are programs that have a proven model of apprenticeships and IRAPs are new programs that have yet to become automatically eligible, and thus must submit reporting measures to the DOL. Both programs have five components: 1) apprentices are paid, 2) possess a structured OTJ learning model, 3) possess an external or internal training classroom learning provider, 4) have structured mentorship and supervision, and 5) grant an industry-recognized credential upon completion of the program (Discover Apprenticeship, 2020b; WIOA, 2020). RAPs and IRAPs have promising outcomes: 94% of apprentice completers continue working for the same employer. Apprentices also make an above average wage of \$70k per year (Discover Apprenticeship, 2020a).

Internships. Internships are worksite placements for learners that can be paid or unpaid learning opportunities in any sector. Internships take a shorter amount of time to complete than apprenticeships, such as during the summer between college semesters. Internships can (and typically are) related to college coursework and can be used for college credit in some cases. Internships are also a way for adults to network with potential employers and for employers to bring in new talent (Cahill, 2016; WIOA, 2020; Gallagher et al., 2019).

On-the-job training. On-the-job (OTJ) training is workplace-based, without the support of classroom learning. Current employees can learn “on-the-job” as part of a planned career track in employer-offered training. More often, federally financed OTJ training is targeted towards dislocated workers or incumbent workers to upgrade their skills so that they may keep their jobs in the face of potential layoffs (Cahill, 2016). The WIOA provides funding for some OJT training programs, including reimbursement of new employee wages up to 90% and to compensate for the lost production of current employees occupied in training the new employees (WIOA, 2020).

Transitional jobs. Temporary positions that target adults with significant barriers to employment, such those with little work experience or those that have varied work experiences (Cahill, 2016; WIOA, 2019). Historically, transitional jobs are meant to “improve the employability of disadvantaged groups”, such as people with disabilities, those who were previously incarcerated, and welfare recipients (Bloom, 2010, p. 2). Transitional jobs help disadvantaged groups gain work experience and support services. WIOA and Temporary Assistance to Needy Families (TANF) funds can be used to subsidize wages up to 100%. These jobs are usually provided by local workforce development boards (Cahill, 2020; WIOA, 2019).

Incumbent worker training. The goal of incumbent worker training is to prevent employee layoffs by upskilling workers. This training is also used to help current employees advance within the company. The WIOA funds the training of workers who have been employed for at least six months in eligible companies (WIOA, 2020).

Co-ops. Co-ops are structured work experiences within an academic program at the college level. These opportunities are usually paid and allow the learners to earn academic credit while they work. These jobs, like internships, are temporary. Unlike internships though, co-ops may require learners to work full-time or part-time in rotation with college classes. Co-ops are common in community colleges and vocational and occupational programs where work experience is a requirement for licensure or an industry certification (Cahill, 2016; Gallagher, 2019).

Consulting and capstone projects. Many academic programs now require students to demonstrate their learning by providing a service or product to an organization (Gallagher, 2019). These learning experiences are different from co-ops and internships as they do not require the learner to work full-time in a workplace. In consulting learning experiences, the learner consults with an organization for the duration of the course. Professors and clients set guidelines for what students can provide, and grades are partially based on the quality of deliverables to the client. In capstone projects, learners work on a project related to their course of study. Learners choose their own project, receive feedback from mentors, and defend their work at the end of the class, year, or program.

Other adult work programs. There are some programs that have elements of apprenticeships, co-ops, internships, and service learning that do not. These programs are typically run by nonprofits, paid, and have some degree of service-learning. Ross et al., describes these programs as incorporating intensive environmental or community service projects, training, and support service or training followed by an externship (2020, p. 3). Some examples of the programs are Americorps, YouthBuild, Teach for America, and Year Up.

Where Does WBL Happen?

The “work” element of WBL occurs in an authentic work environment. The environment can be at a permanent worksite, like a manufacturing plant, but can include various contexts. For apprentice electricians, for example, the work environment may occur at a client’s home or business. For medical students, their practicum could be in a health clinic set up in a parking lot. Increasingly more “work environments” are going remote. Coding bootcamps, consulting, social media internships are all examples of work environments that don't require a physical presence.

The COVID-19 pandemic has further justified the need for remote work environments. As employers offer remote working options, there is a growing demand for employees with experience learning and working with virtual teams. Twitter, Google, and even NASA have made their internship and apprenticeship programs remote due to the pandemic. Still, it is difficult for programs preparing students for vocational jobs in manufacturing and construction to go virtual.

Classroom elements of WBL programs are traditionally in a classroom provided by a community college, or workforce development organization. Classrooms can exist in workplaces too, making a stronger connection between competencies needed and competencies taught.. For low-income, and particularly rural students, virtual learning is more accessible and usually more affordable than in-person and synchronous courses. Learners can take courses from the comfort of their homes, without having to travel long distances, find child-care, and put themselves in danger of contracting Covid-19. Online asynchronous courses are especially accessible, as they don’t require attendance within a stipulated time frame. This flexibility allows learners from low-income backgrounds to be able to work and attend the classroom aspect of WBL. It should be noted that while virtual classrooms have improved accessibility, the impacts on learning quality and outcomes have yet to be fully understood or measured.

WBL and Credentials

Work-based learning provides opportunities for work advancement in the form of work experience, networking, and credentials. The National Skills Association classifies postsecondary credentials into two categories: degree and non-degree credentials. Degree credentials include associates and bachelor’s degrees. Non-degree credentials include licenses, certificates, industry certifications, and micro-credentials (Leventoff, 2018b; Buckwalter, 2018). It is common for degree-seeking adults to also attain non-degree credentials as required by their industry, such as a license to practice medicine, an Automotive Service Excellence (ASE) certification, or an accounting certificate. However, many high school graduates seek out non-degree credentials exclusively, as they require less time and money to complete. Non-degree credentials are also a way for adults to enter the workforce quickly, as they are aligned with current labor needs.

Credentials can also be “stackable”. According to Wilson (2016) “stackable credentials are those that articulate toward a higher-level certificate, degree, or other credential” (p. 1). For example, an associate’s degree could be considered a stackable credential if the next credential is a bachelor's degree that allows further mastery in their chosen field. More common are stackable, non-degree credentials. For example, the San Jacinto College Biomedical Clinical Equipment

Technician program offers four levels of credentials, an occupational certificate (Level I), a certificate of technology (Level II), a level 2 certificate (Level III), and an Associate of Applied Science degree (Level IV). Each level is stackable, and all classes can be applied towards credits for the Associate of Applied Science degree. In stackable credential programs like San Jacinto, students can pause their education between certificates and still have the benefit of earning a post-secondary credential. Once students earn their Associate degree and work hours through an internship, they are then eligible to sit for the industry exam and become a Certified Biomedical Equipment Repair Technician (San Jacinto College, 2021). Stackable credentialing programs offered by community colleges have more flexible entry and exit routes. Some allow students to transfer credits from other colleges or let students “earn credit for prior learning”, such as work experience and military service, lessening the time it takes to finish a credential (Center for Occupational Research and Development, 2021).

Stackable credentials are common in community colleges, where credentials are focused on occupational and vocational programs. As such, more than half of all adults receive a certificate through a community college (American Association of Community Colleges, 2018). Stackable, non-degree credentials are geared towards preparing learners for the workplace (Leventoff, 2018; Wilson, 2016; Buckwalter, 2018). Because of this, many programs include a WBL component, typically through a co-op, internship, or capstone project with an employer.

New to credentialing is the idea of micro-credentialing. Micro-credentials, as can be inferred by the name, are smaller post-secondary awards. Micro-credentialing focuses on building aptitude in just a few competencies. Companies are beginning to create micro-credentialing programs to quickly build competency in their employees, often in three months or less (Buckwalter, 2018). Adults can also seek out micro-credentialing from businesses and non-profits to stand out as a job candidate. Businesses like IBM and the National Education Association offer micro-credentials in topics like “Sales Foundation for IBM SaaS” and “Bully-Free Schools” (IBM, 2021; National Education Association, 2021). Some micro-credentialing programs require learners to submit “evidence” of competency, in the form of an assessment, project, or work examples. If a learner passes, they are awarded a “badge”, a digital representation of their micro-credential that can be shared digitally on sites like LinkedIn and Facebook.

Barriers and Promising Practices

Participating in WBL programs can be challenging for adult learners. Low-income, rural learners face additional layers of difficulty. In this section I identify barriers to adult, low-income rural learners in accessing, participating, and realizing desired program outcomes as well as promising practices organizations can use to overcome these barriers. Barriers and promising practices are organized into three categories, policy, design, and service.

Barriers

Transportation. Public transportation is severely underfunded and unavailable in rural areas across America, forcing commuters to purchase a vehicle to go to work or school (Advance CTE, 2017; Lumina Foundation, 2019). In fact, the Urban Institute found that 33.1% of the rural population lives in a physical education desert (an area without a college, university, or only

single community college within 25 miles), compared with only 16.3% of the total population (Rosenboom & Blagg, 2018). In-person WBL programs are especially difficult for rural, low-income adults as public transportation is limited, even if available. If work and WBL programs are far from each other, this can also make it difficult for low-income rural learners to attend.

Financing. A common institutional barrier is college credit. Adult learners from low-income communities are sometimes barred from financial aid, work-study, or assistantships if they have less than the required number of college credits (such as part-time students). This prevents already low-income learners from being able to afford their courses, which could force them to drop-out.

Program not Designed for Local Needs. WBL not designed for local needs reinforces the belief that rural adults must leave their community in order to get a job. As discussed earlier, outmigration can have serious negative impacts on the community, including a reduction of social services and the degradation of the areas' economic base.

Limited Internet. Internet access is a challenge in rural communities. In 2019, 42.6% of rural households with a median income less than 20k did not have an internet subscription (U.S. Census Bureau, 2019b). The Covid-19 pandemic has surely exacerbated these numbers, as already high rural unemployment increased (George et al., 2021).

Rural learners are more likely to own a smartphone than a laptop or home computer (U.S. Census, 2019b). Coupled with low rates of internet subscriptions in low-income households, accessing courses can be made almost impossible for low-income adults to access online coursework.

Finding Child or Eldercare. Adult learners have adult responsibilities. Child-care and elder-care can complicate especially low-income rural adults' opportunities to learn and take on WBL opportunities.

Emergencies. Emergencies can happen at any time, and can influence a learner's ability to participate in a WBL program. Emergencies such as family hardship, a recent loss of transportation, housing, or food make day-to-day life difficult, much less go to school or work.

Promising Practices

Policy

Pay Learners. Learners engaging in WBL should be compensated. Authors varied in their recommendations as to how to be compensated, such as supplying financial support, free or reduced tuition, and paid work (Ross et al., 2020; Redford, 2019). However, most suggested to incentivize participation in WBL programs through a salary or wage (Cahill, 2016; Showalter & Spiker 2016; Jain & Vazquez, 2021; Holzer & Lerman, 2014; Green, 2005). According to Jain & Vazquez, receiving a wage "will help them [young adults] break out of the cycle of low-wage jobs and attain the experience, education, and relationships necessary for stable and well-paying employment" (p. 20). When learners are paid, they have more investment into their work, which drives persistence and completion rates (Holzer & Lerman, 2024; Jain & Vazquez, 2021). Paid opportunities should also be competitive with local job wages, at least with low-income wages.

Recognize Credits from Other Programs. Colleges can build a Credit for Prior Learning (CPL) to recognize credits awarded at other institutions, lowering the amount of credits, and money, needed to complete a program (Buckwalter & Togila, 2019). According to

the American Council on Education, CPL can also be gained through experiential learning such as workplace training, professional certifications, portfolios, military service, and exams. Exams through Advanced Placement (AP) and International Baccalaureate (IB) can be taken in high school at no cost. Alternatively, anyone can take a College-Level Examination Program (CLEP) administered by the College Board at any time (Lakin et al., 2015).

Design

Design Programs to be Outcome-Driven. Programs should begin with the end in mind. That is, outcomes should clearly state desired outcomes in ways that are measurable. Linked Learning (2012) posits that organizations should move away from focusing on program activities designers assume will drive certain student outcomes. Instead, organizations should design their programs to be driven by student outcomes (Canney & Mezera, 2020). Organizations should work with rural learners, employers, and educational institutions to identify the needs of adult learners from rural communities (Advance CTE, 2017). From there, desired criteria, conditions, outcomes, and the objectives to reach those outcomes, can be designed. Importantly, organizations must write their outcomes to be measurable and evaluated for continuous improvement (Hoff, 2021; Cahill, 2016; Jain & Vazquez, 2021; Linked Learning, 2012; Buckwalter & Togila, 2019).

Schedule and design course delivery to be flexible. Organizations should design their WBL programs to be more accessible for low-income adult learners. To reach those who could most benefit from participation in WBL programs, organizations should schedule courses and work experiences on evenings and weekends to avoid interfering with typical work schedules. Buckwalter & Togila (2019) also suggests minimizing the amount of time learners need to be on-campus by holding classes for only a few days a week. Some colleges and universities in farming communities alter their course schedules to work around the harvest season, so that farmworkers can participate (Ratledge et al., 2020).

Another way to add more flexibility into course design is by providing asynchronous online courses. This way, adults can learn when and where works best for them. Resources like Moodle, Canvas, and Blackboard can be used to track participation in discussions, provide embedded reading materials, and host live or recorded webinars. Rural learners are more likely to own a smartphone than laptop, so when possible coursework should be mobile-friendly (U.S. Census, 2019b). WBL programs can also provide internet access to ensure participants can access their courses (see *Services* below).

Provide Childcare and Accommodate Schedules. The literature recommends organizations provide child-care on-site or offer scheduling accommodations (Ross et al., 2020; Buckwalter & Togila, 2019; Showalker & Spiker, 2016; Cahill, 2016).

Provide coaching support. Important to working with low-income adult learners are services and connections provided by support staff and coaches. Coaches can provide professional advice and emotional and social support. In apprenticeships, coaches are usually job supervisors. In other types of WBL, coaches are program staff, local community members, and instructor spouses assigned to participants (Ross et al., 2020; Buckwalter & Togila, 2019; Showalker & Spiker, 2016; Cahill 2016; Jain & Vazquez, 2021). Showalter & Spiker, (2016) recommends connecting coaches with work experience in the field the learner is interested in.

Jain & Vazquez, (2021) recommends the coach or mentor have similar life experiences or backgrounds or be a similar age to the learner or have WBL experience themselves.

Partner with Local Businesses. WBL-hosting organizations should build strong partnerships with local businesses (Showalter & Spiker., 2016; de Alva & Schneider, 2018; Buckwalter & Togila, 2019; Cahill, 2016; Ross et al., 2020). By working with local businesses, organizations can create pathways to local jobs. According to Redford (2019) “Strategies shown to be most successful in rural workforce recruitment and retention have entailed recruiting students with existing rural ties, and having educational programs that allow them to remain in their communities” (p. 3). While most rural jobs are in education, health care and social assistance, organizations should evaluate the labor needs of each community. For example, in areas that lean farther to the rural end of the rural-urban spectrum, the largest employer tends to be in agriculture, making up 17% of employment (Ajilore & Willingham, 2019). Green (2005) found that larger companies have a higher capacity for engaging in training programs as they have more resources (like supervisors) and more money for training.

It's not enough to just “build connections” with employers in rural communities. Employers should be involved in the design, development, implementation, and evaluation of WBL programs to ensure they are providing the skill and knowledge necessary for learners to be competitive in the job market (Advance CTE, 2016). When working with employers it is important to not let the needs of the labor force be the only driver of skill development. Harnish & Wilke-Schnauffer (1998) warns,

“Job specific skills may not be translated into more generic principles for higher order cognitive skills such as defining problems, identifying processes for solving problems, or knowing how to learn. These skills are especially important in work situations that involve nonroutine tasks and the changing work demands that characterize many workplaces today.” (p. 23)

That is to say, classroom learning should focus on higher-order thinking to build critical development skills. This will be important if the learner takes a job from a different employer than the one they trained with, to improve their market competitiveness, adapt to new processes and expectations and to help them get promotions and raises. This might be providing programs that offer industry-recognized certificates or credentials and relevant courses on topics such as industry regulations and laws.

Services

Provide transportation and gas money. Organizations can help offset these costs by providing shuttle services and vouchers or helping car owners with gas money (Ross et al., 2020; Buckwalter et al. 2019; Showalter & Spiker, 2016; Cahill, 2016; Canney & Mezera, 2020) As discussed earlier, reducing the need for learners to be in-person will also make courses more accessible. A longer-term solution is for organizations to work with state and local leaders to champion public transportation services and funding in rural areas.

Provide Internet Access and Vouchers. Like transportation, organizations can help learners access their courses by providing spaces with internet access, called “telecommuting hubs” (Ratledge et al., 2020). Organizations can also team up with local libraries, community centers, and colleges to provide internet access for participants. Internet vouchers for internet

access at home might be especially helpful in the age of Covid-19. This could also help adults save money on transportation costs and allow them to help with child and elder care.

Provide Emergency Aid and Services. Buckwalter et al. (2019), Ratledge et al. (2020), and Cahill (2016) recommended WBL hosting organizations to have emergency aid, such as a food pantry, overnight shelters, and emergency aid for expenses like car repairs and babysitting. These authors would argue that emergency services are especially useful for low-income learners, as setbacks can have a tremendous impact on learners persisting in WBL programs.

Outcomes and Indicators in WBL Programs

There are limited sources on outcomes and indicators for WBL programs with adult participants. Identifying outcomes is an essential part of the WBL program process. Desired outcomes should be strategically aligned with labor market and local business leads so participants have in-demand skills and knowledge to be employed. For programs targeting rural learners, a desired outcome would be placing participants in well-paying local jobs. Organizations should also consider how their desired outcomes might impact the local community.

After program designers select their outcomes, they should select indicators demonstrating that the desired outcome was achieved. In programs targeting adult participants, indicators should reflect adult measures of success. Typically, program indicators include persistence, retention, completion, and graduation rates etc. However, indicators should also include student-level outcomes such as higher salaries, promotions, and job placement.

Issues in Measuring Learning Outcomes

Definitions. “Work-based learning” is a difficult term for researchers as there is no standard definition among federal agencies, states, organizations, and nonprofits. This lack of consensus poses a few challenges, such as conducting rigorous comparative studies on WBL. The consequence of this is that most WBL practices can only be described as “emerging” or “promising”.

Reporting on WBL programs is especially difficult for programs and states, as there is not a government-recognized definition of “WBL”. Instead, states are encouraged to create their own definition of WBL. However, only 28 state education agencies (SEAs) and two departments of labor/workforce have a formal definition of WBL (Giffin et al., 2018). Beyond state and national definitions, is the tendency to frame WBL as an education initiative for secondary students. Due to this, indicators of WBL program success typically measure secondary student outcomes.

Causality. Data showing relationships between indicators can be misconstrued as correlated or causal. For example, learners with higher attendance rates might also have higher job earnings, but this need not be as a consequence of the program itself. Program administrators should be careful not to assume that higher attendance rates are positively correlated with higher job earnings or caused by it. In fact, there may be underlying indicators that have more of an influence on higher job earnings than attendance such as access to transportation, gendered care responsibilities and norms, motivation, and access to education. One way administrators can

tackle this problem is by developing evaluation methodologies and collecting data on their participants. By creating an evaluation methodology or framework, outcomes can be measured with their relationships

Lack of Resources. The lack of resources needed to evaluate WBL programs makes it difficult for program designers, state leaders, and stakeholders to determine and measure their intended outcomes. Spaulding et al. (2020) recommends WBL programs hire staff and external auditors to measure data such as student progress and program success. However, many WBL providers are short-staffed and underfunded already. In these cases, it is difficult to find the resources to bring on this type of expertise.

Collecting Data from Adults. Another issue is data collection from adults. It may be difficult to get information from program graduates (and even harder if they dropped out). Unlike primary and secondary students, adults are not reliably in one area, such as a school building for researchers to collect data from. Adults have adult responsibilities and may be more difficult to set up time to interview or survey. Therefore, determining learning outcomes and *how* they will be measured is best formulated in the design stages of the WBL program.

Measuring Program and Student-Level Outcomes. Organizations should collect data on WBL program quality using systems or program-level and student-level indicators. At the program-level are indicators such as admission and graduation rates, program design features, and industry alignment to occupational standards (Blankenstein & Wolff-Eisenberg, 2020; Van Noy et al., 2019). Student-level indicators include demographic information, skills gain, and attendance rates.

According to Advance CTE (2016), student-level indicators are more difficult to collect than program-level indicators. Student-level data such as “skill gain” is more difficult to measure than admission rates and often requires a “valid and reliable system to assess student learning” (Advance CTE, 2016, p. 2). At the program level, some indicators can be measured from reporting on statistics, such as admission and graduation rates. Another way to evaluate at the program-level is to invite industry professionals to evaluate the program offerings for fidelity to actual labor needs (Advance CTE, 2016).

Using Kirkpatrick’s Four Levels of Analysis to Measure Program Quality by using Student-Level Indicators

Organizations should establish and evaluate their WBL programs using student-level indicators regularly. Creating a plan to measure the impact of the program is beneficial for several reasons; 1) to see if outcomes are being met and to revise the program or its intended outcomes and 2) to justify the program’s existence to stakeholders, participants, and investors. Internal evaluation helps improve the program to make its offerings more relevant to participant’s interests and the needs of the workforce.

Kirkpatrick and Kirkpatrick (2006) devised a model for evaluating training programs at the student-level in four levels. At each next level, the process for evaluating becomes more challenging, but provides more valuable insights and data. This model is called Kirkpatrick’s Four Levels of Evaluation, consisting of Level 1 - Reaction, Level 2 - Learning, Level 3 - Behavior, Level 4 - Results, as can be seen in Figure 3.

Level 1 - Reaction. Indicators and data at this level are based on how satisfied a participant was with the program. This information can be helpful, because if participants aren't happy with the program, then they will likely not finish it or recommend it to others. When triangulated with other data sources, it can help indicate what needs to be done to better manage participants' expectations and/or point to needed future iterative changes. Level 1 - Reaction data can be measured using surveys, reaction sheets, interviews etc. Surveys and interviews can also be used to "fill" in knowledge gaps about program participants, such as demographic information. For example, qualitative data such as motivating factors for entering or exiting the program can help organizations assess their program effectiveness at retaining adults. This information can be especially helpful for marketing the program. Student outcomes at the Reaction level include:

- satisfaction with the program
 - satisfaction with the trainer(s) or presenter(s)
 - satisfactions with material
- motivating factors for entering and exiting the program
- perceived effect on relationship to Results (Level 4 outcomes).

Level 2 - Learning. At this level, participants demonstrate their knowledge, skills, and their attitudes about what they learned. This information is usually collected through exams, projects, and portfolios. Kirkpatrick argues that unless learning happens, the next level, behavior can't improve. Student outcomes at the Learning level include:

- attitudes are changed
- knowledge is improved
- skills are increased (Kirkpatrick & Kirkpatrick, 2006).

Level 3 - Behavior. At this level, the learner demonstrates learning transfer on the job, the ability to take what they learn at the Learning level and apply it to work. Behavior can be evaluated by observing behavior while on the job, both before and after teaching a new skill. Another way is to measure the behavior of an expert who has already mastered the behavior and then create a performance test to compare with learners. Behavior can also be measured using employer feedback on individual performance (Griffin, 2019). In Massachusetts, the Connecting Activities Initiative evaluates student-level outcomes at the behavior level by having worksite supervisors assess learners' skill transfer on a five-point scale at the beginning and end of the program (Advance CTE, 2016). Student outcomes at the Behavior level include:

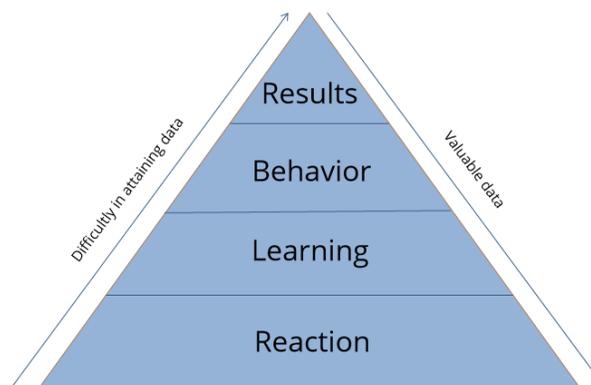
- work experience in applying new knowledge, skills, and attitudes.

Level 4 - Results. At this level results are measured. In business, results show how a training program influences the organizations, such as return on investment (ROI), more clients, less workplace accidents, quicker turnaround etc. These indicators can demonstrate how well the program met their goals or Key Performance Indicators (KPIs) and help organizations decide how to modify their program to improve results. At the student-level, results include indicator-outcomes such as:

- being hired

- a higher salary
- a promotion.

Figure 3
Kirkpatrick's Four Levels of Evaluation



Note. Adapted from *Evaluating training programs: the four levels* (3rd ed.), by D. L. Kirkpatrick and J. D. Kirkpatrick, 2006. Berrett-Koehler.

Indicators to Assess Program Effectiveness

Traditionally, education indicators at the postsecondary level use program-level indicators such as completion, persistence, and the attainment of an academic degree (Ewert & Kominski, 2014). These programs are usually hosted by college programs. While WBL programs are common in community colleges, many are hosted by employers and workforce agencies that do not award academic degrees. As such, organizations may want to consider indicators that align specifically with their program design.

The WIOA Statewide Performance Reports require states to submit performance reports every year on their adult education and training programs. Data is collected on total participants served and exited, employment rates in the second and fourth quarter, median earnings, credential rate, and measurable skill gain (OCTAE, 2020). The literature further recommends programs use three indicators to assess program effectiveness:

- Credentials,
- Job placement, and
- Higher wages.

Does the WBL Program Lead to a Credential? Credentials are an essential component of many WBL programs, especially in community colleges. Credentials can be degrees, certificates, licenses, industry-certifications, and microcredentials. Credentials are important indicators because they are correlated with job placement and higher wages, which improve the livelihoods of adults, especially those from low-income backgrounds. Many jobs require a postsecondary credential. WBL programs can design their own credentials, such as a certificate, demonstrating specific competencies. Certificates, especially when linked to industry credentials,

gain higher market value. For example, if a program knows that to get an advanced plumbing license, an applicant must have 50 hours of plumbing work experience, the WBL program could include the 50 hours needed as part of the program design (Spaulding et al., 2020; Showalter & Spiker, 2016; Jain & Vazquez, 2021; Leventoff, 2018b; Ross et al., 2020; Cahill, 2016; Van Noy et al., 2019; Education Strategy Group, 2018).

Does the WBL program Place Participants in Relevant, Well-Paying Jobs? Under the WIOA, adults' employment rate after they exit their program is measured in the second and fourth quarter. However, this rate does not explain if the adult is in a job they were trained for. For example, the WIOA would count a participant who was trained as a plumber as "employed" if at the time of data collection, they were working at a supermarket. Programs can indicate their success to funders by providing training programs that prepare for and place participants in relevant, well-paying jobs (National Reporting System for Adult Education, n.d.). WBL programs should also measure how long it takes for learners to be hired (Spaulding et al. 2020; Showalter & Spiker, 2016; Jain & Vazquez, 2021; Cahill, 2016; de Alva & Schneider, 2018; Buckwalter & Togila; Ross et al., 2020, Van Noy et al., 2019).

Does the Participant Experience Wage Gain After Finishing the WBL Program? The WIOA also measures median earnings of participants in the second quarter after the participant exits the program. Program providers should also record earnings of participants, whether they graduate or not. Participation, even for a short amount of time, may improve earnings no matter their industry of employment. Higher wages are usually correlated with a higher quality of life. Higher wages would be especially impactful for those from low-income backgrounds and could quickly lift participants out of low-income or poverty statuses (Showalter & Spiker, 2016; Jain & Vazquez, 2021; de Alva & Schneider, 2018; Spaulding et al. 2020, Van Noy et al., 2019).

Further research

WBL is relatively new to the field of education and training. Most of the sources in this literature review are institutional reports, not articles in academic journals. There are few studies evaluating program quality of WBL programs. Further research is also needed on adult drivers of entering and persisting through WBL programs. This literature review explored the challenges learners face (affordability, distance, match, etc.) when trying to attain education. However, more research is needed on the challenges providers encounter, such as funding, matching the needs of the labor market, and reporting to state or national entities.

This literature review did not rank the listed promising practices, although there may be some practices that are more promising than others. In addition, research is needed to determine if there is a combination of practices that lead to better outcomes.

Conclusions

There is a pressing need for educational opportunities that allow rural adults to stay in their communities, gain knowledge, skills, and work experience and fill local labor demands. For this to happen, state and local governments, employers, and educational institutions must create

new opportunities, such as WBL programs, to attract and retain adults. To attract low-income adults and other disadvantaged groups, barriers to access such as transportation and internet access must also be addressed. Organizations should determine early in program design their desired outcomes and indicators of these outcomes. Programs should also design for students, not program level outcomes. Indicators of recommended indicators include job placement and retention, credentials, and higher wages.

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