



Final Report

**Exploring the Role and
Adoption of Technology-
Based Training and
Employment Services**

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List of Acronyms and Abbreviations

AJC	American Job Center
The Department	The United States Department of Labor
ETA	Employment and Training Administration
ETPL	Eligible Training Provider List
ITA	Individual Training Account
LWIA	Local Workforce Investment Area
LWIB	Local Workforce Investment Board
OVAE	Office of Vocational and Adult Education
PY 2011	Program Year 2011 (July 1, 2011 – June 30, 2012)
SWA	State Workforce Agency
TAACCCT	Trade Adjustment Assistance Community College and Career Training (grants program)
TBL	Technology-based learning
TEGL	Training and Employment Guidance Letter
TEN	Training and Employment Notice
WIA	The Workforce Investment Act of 1998
WIB	Workforce Investment Board

Executive Summary

Introduction

The dramatic evolution of computer and communications technology, coupled with an ever-increasing emphasis on cost-effectiveness, underscores the potential of technology-based learning (TBL), or e-learning, in the public workforce investment system. The U.S. Department of Labor (the Department), Employment and Training Administration (ETA) launched a national initiative in 2008 to systematically explore TBL's role and its adoption within the workforce system. To date, several demonstration grants and pilots funded under the TBL Initiative have examined the structure and outcomes of specific training programs. Despite these insights, comparatively little was known about the emphasis on TBL at the state policy level or its systematic adoption and use at the local level by American Job Centers (AJCs) and other providers.

With funding from the Department, Abt Associates conducted a study during 2012-2013 to collect descriptive information about the use of TBL at the state and local levels of the workforce system. Data about state policies and support for TBL were collected in an online survey of state workforce agency (SWA) administrators (82 percent response rate), and data about local implementation of TBL were collected in an online survey of the Executive Directors of Local Workforce Investment Boards (LWIBs; 69 percent response rate). This report presents the findings from those surveys. Specifically, it provides a description of SWAs' efforts to promote and support TBL, as well as actual adoption and use of TBL at the local level in providing Workforce Investment Act (WIA) services. These include WIA Title I core, intensive, and training services and WIA Title II educational services. The report also identifies factors that appear to facilitate or impede state supports for TBL and local use of TBL.

For purposes of this research, TBL is defined as an umbrella term for any learning via electronic technology. Further, TBL is subdivided into two distinct uses of electronic technology. The first is the use of technology to promote skills building that supports academic, occupational training, or personal development objectives. The second is the use of technology to provide information or resources needed to support the workforce development process (e.g., provision of labor market information, career information). In this report, the term "TBL" will be used to describe either type of learning, and, where appropriate, the report will draw a distinction between the two forms of TBL, **technology-based skills building** and **technology-based services**.

The Context for Technology-Based Learning

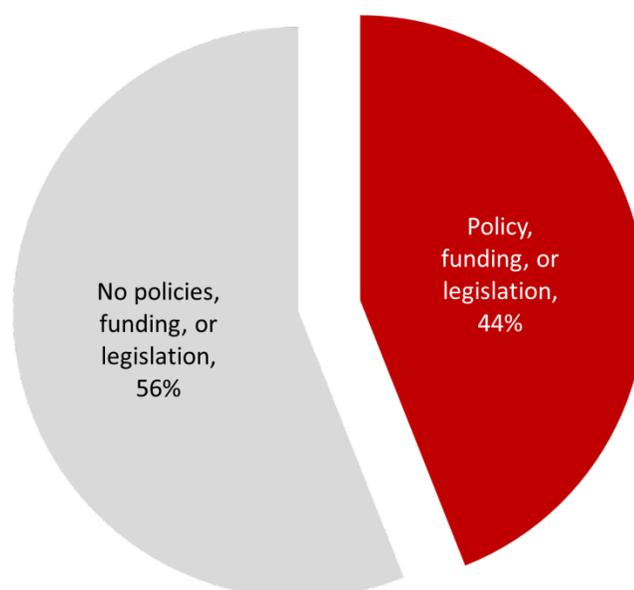
The report begins by exploring the context for TBL at the state and local levels. In their respective surveys, SWA and Local Workforce Investment Area (LWIA) representatives were asked to describe the environmental factors against which TBL is adopted and used for workforce development.

State Context for TBL

SWAs, through their role in establishing policy and investment priorities, have the capacity to influence workforce development strategies and service delivery at the local level. The survey of SWA administrators collected information about their perceptions of TBL and its role in supporting the broader mission of the workforce system. The administrators' responses suggest that states were establishing commitments and an infrastructure to support the use of TBL within the workforce system. Specifically:

- Over half (60 percent) of SWA respondents rated TBL as a medium or high strategic priority.
- Approximately 40 percent of SWA respondents report that their states made institutional commitments to TBL by establishing policies, passing state legislation, or funding initiatives that specifically promote its use (Exhibit E.1).
- Nearly three-quarters (73 percent) of respondents reported that their SWAs use or encourage the use of TBL. Among those respondents, approximately 80 percent view TBL as a way of advancing other critical priorities such as increasing access to WIA services, expanding participant flexibility, and improving the overall cost efficiency of the system.
- The majority of SWA respondents (60 percent) report their states monitor the extent to which technology-based skills building and other modes of skills building were used by their Eligible Training Providers.

Exhibit E.1: State institutional commitments to TBL



Notes: n=45
Additional detail provided in Exhibit A.3.3 in Appendix A
Source: TBL state survey

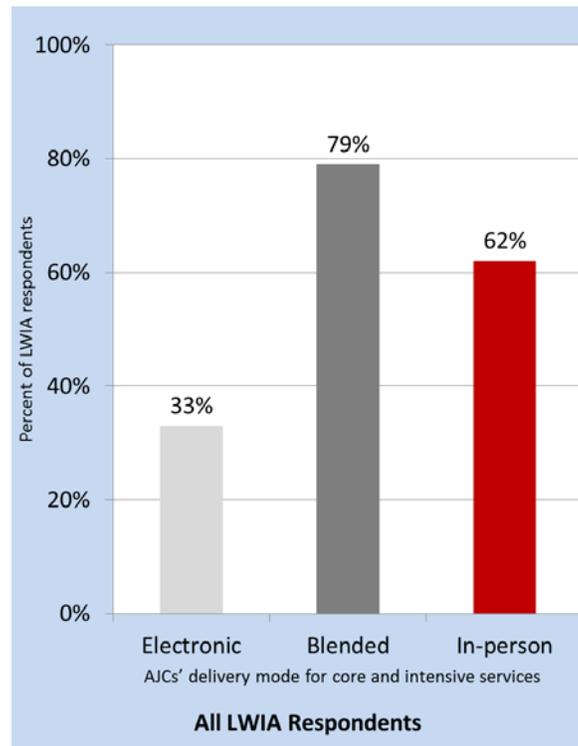
Local Implementation of TBL

Against this backdrop, LWIBs made their own institutional investments that shape TBL opportunities and use at the local level. The use of TBL for workforce development at the local level has resulted in a delivery system characterized by services that rely on:

- *Electronic technology only*: participants can access services only through electronic technology (e.g., online, in a computer lab, videoconferencing);
- *Blended delivery*: participants can access services both through electronic technology and in person.
- *In-person*: participants can access services and activities by directly visiting AJCs or attending classes, workshops, or counseling sessions run in-person by service providers.

One-third (33 percent) of LWIA respondents reported that their AJCs offer some electronic-only services and another 79 percent reported that their AJCs offer various types of blended services (Exhibit E.2). Additionally, nearly one-fifth of the LWIA respondents report that their LWIBs invested in online-only providers, such as Virtual One-Stop, to provide technology-based services that supplement their traditional AJCs.

Exhibit E.2: Delivery modes employed by American Job Centers



Notes: n=431

Only respondents who reported that their LWIA had one or more Comprehensive American Job Center completed this question.

Percentages do not sum to 100 since respondents could select more than one type of delivery mode.

Additional detail provided in Exhibit A.4.3 in Appendix A

Source: TBL local survey

LWIBs made targeted investments designed to attract and support individual participants. The majority of respondents (72 percent) reported that their AJCs made proactive efforts to promote the use of TBL. While many report relying on traditional marketing approaches, over half of LWIA respondents reported that their AJCs were using some form of online promotional materials (63 percent) or social media (54 percent) to advance their TBL agendas. To complement these marketing efforts, LWIBs made infrastructure investments that facilitate both access to and use of TBL. For example, nearly all LWIA respondents reported that their AJCs provide on-site access to computers labs, laptops, and the Internet, while more than half reported that their AJCs offer access to video or audio devices (63 and 54 percent, respectively). These investments may be used for both technology-based skills building and technology-based services.

Finally, the majority of LWIA respondents reported that their AJCs were making investments in activities designed to maximize users' comfort with, and efficient use of, technology-based platforms and content

(Exhibit E.3). For example, nearly two-thirds of respondents (65 percent) reported that their local delivery systems conduct an assessment or initial interview to determine participants' levels of technology readiness. To supplement pre-program activities, two-thirds (66 percent) of LWIA respondents reported that their AJCs had some form of a technical assistance strategy to assist clients in using TBL.

Exhibit E.3: Activities supporting the use of technology

	Percentage of LWIA respondents
Assessment activities	
Assessment or interview to assess technology readiness	65
Assessment or interview related to course hardware, software, or equipment requirements	48
Support activities	
Technical assistance to support participants' use of TBL	66
Formal orientation to course technology or to learning management system	37

Notes: N=349-372

Additional detail provided in Exhibit A.4.8 in Appendix A

Source: TBL local survey

Integration of TBL into WIA Services

AJCs serve adults, youth, and dislocated workers through the provision of WIA core and intensive services. They also administer funds for occupational training and provide referrals to adult education providers. In discussing these activities, the report distinguishes between the use of technology to promote and support core and intensive services and technology-based skills building that supports the development of academic, occupational, and/or personal skills.

When asked about the use of technology-based services for providing core services, LWIA respondents reported that their AJCs generally use a blended approach, involving both in-person and electronic technology services. Approximately three-quarters (78 percent) of respondents indicated that their AJCs use a blended approach in their career exploration and job search process (for example, having staff introduce participants to online tools). However, many AJCs continue to provide exclusively personalized (in-person) core services in key information-based functions, such as the use of labor market information (45 percent) and exploration of career, training, and support service options (78 percent).

Compared to core services, intensive services were somewhat less likely to have a technology component in their delivery. LWIA respondents identified the use of technology to support three categories of intensive services:

- Foundational skills:** Almost half (40 to 50 percent) of LWIA respondents indicated that their AJCs used a blended delivery approach to develop participants' foundational skills (e.g., job application skills, computer software skills, soft skills). The lowest use of technology-based skills building was in the delivery of soft skills (37 percent blended delivery), which typically necessitate interpersonal support.

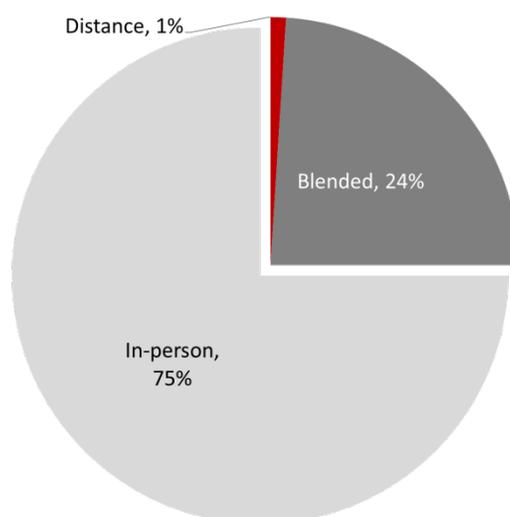
- **Assessment:** Compared to other intensive services, the assessment functions were more likely to be offered using blended delivery. Technology-based services were more prevalent in support of diagnostic testing (53 percent blended; 20 percent electronic-only) than in assessments designed to identify individual employment goals and barriers (35 percent blended; 12 percent electronic-only).
- **Counseling and case management:** These intensive services were unlikely to be delivered using electronic technology (exclusively or blended) and were widely characterized by in-person delivery. This finding suggests that LWIA respondents acknowledge that in-person interaction remained a hallmark of these participant support activities.

The personal computer (laptop or desktop) was the most prevalent form of technology used to deliver TBL-based core or intensive services. However, the data further indicated that smartphones (50 percent of LWIA respondents), as well as various video devices (53 percent of LWIA respondents) and videoconferencing (43 percent of LWIA respondents), were platforms through which participants may have accessed workforce development services.

Unlike most core and intensive services, which are offered through AJCs, occupational training is offered primarily through eligible program providers. To ensure a consistent reference point across the survey, LWIA respondents were asked to provide information on the use of TBL to support their five largest (highest number of participants with ITAs) training programs that served WIA participants during Program Year 2011 (PY 2011; July 1, 2011–June 30, 2012). Technology-based skills building in occupational training was being conducted using blended delivery models in one-quarter of the high-volume programs; few high-volume programs relied on exclusively distance models (Exhibit E.4).

The use of technology-based skills building varied by characteristics of the training programs. Approximately half (54 percent) of the high-volume training programs were offered through public, post-secondary educational institutions, such as community colleges. Their rate of providing technology-based skills building was higher than the average, with nearly one-third (30 percent) of the LWIA respondents reporting that the colleges used either distance or blended options to deliver occupational training. The use of technology-based skills building as a training option varied by sector as well as credential offered. The highest use of distance learning or blended options was reported among training programs targeting IT occupations (47 percent) and those resulting in an Associate's Degree (47 percent).

Similarly, Title II adult education services are offered primarily through a network of providers. LWIA respondents were asked to provide information about the use of technology-based skills building to support services from up to five Title II providers to which their AJCs made the most referrals during PY 2011. Approximately one-third of Title II service providers associated with the LWIAs responding to the survey delivered adult education services through technology-based skills building. Largely, providers using technology-based skills building were local education agencies, 35 percent of whom offer blended services. There was little variation in the extent to which service providers used technology-based skills building to deliver Title II services (adult basic education, general educational development (GED) classes, or English as a Second Language instruction).

Exhibit E.4: Delivery modes for high-volume training programs

Notes: n=2,014

Additional detail provided in Exhibit A.6.1 in Appendix A

Source: TBL local survey

Factors Affecting TBL Adoption and Use

The integration of TBL into the workforce system is an evolving process that is affected by various factors. In their respective surveys, SWA administrators and LWIA representatives were asked to rate the importance of a number of factors in terms of whether they pose potential barriers to the adoption and use of TBL.

Responses from the state survey suggest solid acceptance of the use of technology-based services, particularly among state policymakers and training providers. Over half of SWA respondents (56%) reported that state policymakers and training providers posed little or no barrier to implementing TBL (either technology-based skill building or technology-based services). SWA respondents did, however, express some concerns regarding both costs and the instructional effectiveness of TBL.

SWA respondents reported concerns about actual expenditures on TBL and the organizational cost of transitioning to the use of TBL. Approximately 44 percent of SWA respondents reported that the cost or difficulty of implementing the necessary technology for TBL courses was a large or significant barrier. The cost or difficulty of developing TBL courses was also seen as a large or significant barrier by 38 percent of SWA respondents.

LWIA respondents' perceptions of barriers were similar to those reported by SWA respondents. LWIA respondents also reported that key stakeholders' (e.g., state policymakers, the local workforce system, employers) acceptance of TBL adoption and uses did not pose a significant barrier. Despite this receptive environment, three factors were reported as barriers that warrant further exploration and attention. The first barrier concerned costs. Approximately half of LWIA respondents cited the costs or difficulty of implementing TBL (e.g., assessing the quality of TBL courses, developing courses, implementing the necessary technology) as considerable barriers. Second, nearly two-thirds (64 percent) of LWIA respondents cited the participants' levels of technological readiness as a significant barrier. A final factor

was the perceived limitations of TBL instruction, which almost half of LWIA respondents (42 percent) viewed as a large or significant barrier. This sentiment was underscored by the related perception that technology-based instruction may be less capable of fully engaging learners, resulting in lower levels of effort (e.g., social loafing; 51 percent of LWIA respondents) or course dropout (52 percent of LWIA respondents).

Implications

This research helped to identify several issues that should be further explored as ETA refines the focus of its TBL Initiative going forward. Overall, the research points to several inter-related factors related to current and future adoption and use of TBL in the workforce system. Areas for additional work include:

- Understanding exactly what constitutes an appropriate level of technological literacy and where the current competency gaps are;
- Promoting instructional effectiveness and consistency of TBL by working with providers and partners to further convey expectations or standards around TBL (e.g., course design and pilot testing, online teaching credentials, and availability of student support options);
- Exploring institutional options to share developmental costs and defray operating costs of TBL;
- Understanding the dynamics of TBL promotion in terms of what it takes to establish a technology-friendly service delivery environment, how to reduce dependence on or expectations of staff-based services, and how to use existing technology to promote newer technology;
- Examining the role and effectiveness of technical assistance to: 1) provide the support needed for AJC participants to reap maximum benefit from WIA services and 2) create and communicate a supportive learning environment that will attract and retain participants in the future.

Finally, the workforce system has a long established history of providing individualized and hands-on support to participants looking to enhance their employability and career opportunities. This research has demonstrated the prevalence of blended delivery options for both technology-based services and technology-based skills building. That emphasis on blended options underscores the importance of continuing to implement TBL at a pace and in a way that maintains the essential character of the workforce system. Moving forward requires that ETA's TBL Initiative remains aware of, and sensitive to, establishing realistic and balanced expectations around the pace of TBL adoption. In addition it requires that ETA communicates an appropriately balanced message about TBL for policymakers, planners, practitioners, and providers. To do so, the ETA should continue to offer both the insight and support needed for state decision-makers and LWIBs to make informed decisions about where and when to invest in TBL within the workforce system.

1. Introduction

Technology-based learning (TBL), also commonly known as e-learning, has gained considerable traction as a workforce development and training strategy. Broadly, TBL constitutes any learning via electronic technology. This definition includes online education as well as learning facilitated by other electronic technologies like Intranet sites, satellite broadcasts, audio- and videoconferencing, Internet bulletin boards and chat rooms, Webcasts, virtual classrooms, simulations, electronic gaming, podcasts, CD-ROMs, and a variety of mobile options (e.g., smart phone applications or “apps”).

For purposes of this research, TBL is defined as an umbrella term that encompasses two types of learning via electronic technology. The first is the use of technology to promote skills building that supports academic, occupational training, or personal development objectives. The second is the use of technology to build knowledge or provide information or resources needed to support the workforce development process (e.g., provision of labor market information, career information). In this report, the term “TBL” will be used to describe either type of learning, and, where appropriate, the report will draw a distinction between the two forms of TBL, **technology-based skills building** and **technology-based services**.

In addition to broadening accessibility, TBL may also allow for customization of content, delivery, and instructional approach. TBL-based applications may be predominantly instructor-centric (with an expert at the core who delivers a lecture), content-centric (learners interact individually with content embedded in a learning system), or participant-centric (the participant is the navigator, driving the content and pace). Finally, TBL delivery may also scale up more easily and cost-effectively than traditional classroom learning, allowing more learners to access content without a commensurate increase in resources.

Given its potential for flexibility, ease of delivery, and cost-effectiveness, TBL may be especially applicable for use in the nation’s public workforce investment system. The Employment and Training Administration (ETA) of the U.S. Department of Labor (the Department) oversees the operation of key aspects of the workforce system and has supported the integration of TBL strategies into its service delivery system.

One key way ETA has supported the integration of TBL for workforce development is through the TBL Initiative. This study is part of that initiative, which aims to “increase the number of people trained or certified in high-growth, high-demand occupations and industries through the broadening of training opportunities for skills building made available timely and conveniently through the use of TBL methodologies” (U.S. DOL 2008b, 3). Sponsored by ETA and conducted by Abt Associates, the study was designed to document and describe the extent to which TBL is currently being used, under what circumstances, and the factors that shape its adoption in the workforce system as a whole. It does so through the examination of two primary data sources:

Technology-based learning (TBL), also known as e-learning, constitutes any learning via electronic technology. This definition includes online education as well as learning facilitated by other electronic technologies like Intranet sites, satellite broadcasts, audio- and videoconferencing, Internet bulletin boards and chat rooms, Webcasts, simulations, electronic gaming, podcasts, CD-ROMs, and a variety of mobile options (e.g., smart phone applications or “apps”).

- A survey of state workforce agency (SWA) administrators in each state to gather insight into the state context for TBL adoption and promotion; and

- A survey of administrators of each Local Workforce Investment Area (LWIA) regarding the current use of TBL at the program level and factors that facilitate or impede its viability.

Where possible, the research also sought to provide insight into specific program models that might be of value to those in the workforce system seeking to expand or refine their use of TBL. In-depth telephone interviews were conducted with LWIA respondents to gather additional detail on specific TBL efforts they referenced in completing their surveys. Ultimately, the findings from this research may be used by ETA to better understand the potential of technology-based skills building and technology-based services so that they can be most effectively integrated into the workforce system.

The remainder of this chapter provides context for this study in two ways. First, it provides a very broad overview of the public workforce investment system, with an emphasis on the provision of services that may be particularly germane to TBL. This is followed by a brief overview of the ETA's TBL Initiative, with an emphasis on select efforts that ETA has undertaken to promote the integration of TBL throughout the workforce system. Finally, it closes with an overview of the organization of the report.

1.1 The Workforce Investment System

To give context to this study, it is helpful to review the organizational structure of the workforce system. The workforce system was established by the Workforce Investment Act of 1998 (Public Law 105-220; WIA) and is a key resource for employment and training services for job seekers and businesses across the country. WIA is designed “to consolidate, coordinate, and improve employment, training, literacy, and vocational rehabilitation programs in the United States.”¹ Specifically, Title I: Workforce Investment Systems and Title II: Adult Education and Family Literacy mandate the provision of a range of workforce development services, including assessment, basic skills education, career readiness, occupational training, and job search. Title I focuses on the provision of workforce preparation and employment services designed to meet the needs of both businesses and (potential or incumbent) employees. For Title I, WIA authorizes activities at two levels within the workforce system: states and Local Workforce Investment Areas (LWIAs). Federal WIA funding is split such that 15 percent is reserved for statewide activities and the majority flows down to LWIAs.²

WIA was designed to foster coordinated, long-term planning for workforce development programs.³ It establishes American Job Centers (AJCs), formerly known as One-Stop Career Centers,⁴ as the

¹ The Workforce Investment Act of 1998

² This report focuses on services for adults and dislocated workers. Eight-five percent of adult funding is allocated to local areas and 15 percent is reserved for statewide activities. Dislocated worker funding is split so that 60 percent is allocated to local areas and 40 percent is reserved for the state (15 percent for statewide activities and up to 25 percent for state rapid response activities).

³ For more information on the workforce investment system as established by WIA, see Barnow and King (2005). The long-term planning goal was intended, not only for WIA, but also for the Employment Service (labor exchange services supported under the Wagner-Peyser Act), and related funding streams such as Temporary Assistance for Needy Families (TANF) work programs, Adult Education and Family Literacy, Career and Technical Education, and Vocational Rehabilitation program.

⁴ Training and Employment Guidance Letter 36-11 describes the implementation of identifying or branding all One-Stop Career Centers as American Job Centers (U.S. DOL, 2012a).⁵ Any adult age 18 or older does not need to meet any qualifying characteristics in order to receive core services.

cornerstone and front end of the local workforce delivery system. At the AJCs, services for job seekers are sequenced through three tiers: core, intensive, and training services.

- Core services are universally available⁵ and generally involve the provision of information on job openings; the labor market; and providers of training services, youth activities, adult education, vocational rehabilitation activities, and vocational education.
- Intensive services are available for individuals who are unable, after receiving core services, “to obtain or retain employment that allows for self-sufficiency.”⁶ These services generally involve individualized activities such as counseling and assessment to help customers choose training programs and select occupational areas.
- Training generally consists of classroom or on-the-job preparation for a specific occupation or set of occupations and, if funding is available, is open to individuals who are unable to obtain or retain employment after receiving intensive services. Voucher-based Individual Training Accounts (ITAs) are used to allow individuals to choose among a variety of approved training providers. Local Workforce Investment Boards (LWIBs)—under guidance from the states—are responsible for establishing and overseeing the Eligible Training Provider List (ETPL), which lists, for each state, the approved training programs from which participants can access WIA services using ITAs.

Additionally, individuals who do not have a high school diploma may be referred by the AJCs to adult education services. Adult education services are described by WIA Title II and are designed to ensure that participants have the educational foundation needed to pursue employment opportunities that can lead to economic self-sufficiency. Title II services are administered by the U.S. Department of Education’s Office of Vocational and Adult Education (OVAE).

At the state level, WIA mandated the creation of state Workforce Investment Boards (WIBs). Each Board comprises the governor, two members of each chamber of the state legislature, and representatives appointed by the governor, including business leaders, chief elected officials, labor organization leaders, state agency heads, and individuals with related experience. The Board’s duties include providing broad policy guidance to the governor on the statewide workforce system and statewide labor market information system. The Board also helps the governors monitor statewide activities and provide grant planning and operations infrastructure for regional or local WIBs.

While states vary in their organizational structures and divisions of responsibilities, generally an SWA (e.g., state departments or offices of labor, commerce, or workforce development) may work with the state WIB on statewide employment and training activities. SWAs tend to be charged with administering and disbursing WIA Title I funds. Their specific responsibilities relevant to TBL may include assisting the state WIB in overseeing LWIBs, overseeing the operation of the AJCs, and disseminating the state list of approved training programs.

Within each state, LWIBs are funded under WIA Title I and appointed by local elected officials in accordance with criteria established by the relevant governor. They must include representatives from

⁵ Any adult age 18 or older does not need to meet any qualifying characteristics in order to receive core services.

⁶ If funding is limited, LWIBs, in consultation with their state’s governor, prioritize providing intensive and training services to recipients of public assistance and other low-income individuals.

business, education providers, labor organizations, community-based organizations, and economic development agencies. LWIBs oversee each local workforce investment area (LWIA).

LWIAs are geographical jurisdictions within states that are designated by each state governor. LWIAs tend to be geographic areas served by common educational institutions and consistent with local labor market and labor pool areas. Local governmental units with populations of 500,000 or more tend to constitute their own LWIAs. LWIBs designate intermediaries to provide WIA services within their LWIAs; LWIBs themselves are rarely service providers.

The intermediaries are public or private organizations that operate the AJCs, training programs, and providers of Title II services. AJCs' responsibilities include providing core and intensive services and administering funds for direct training services. They are also required to refer qualifying participants to Title II providers for adult education services. It is this bundle of WIA Title I and Title II services, and the prevalence of TBL in providing these services, that is the focus of this report.

1.2 ETA's Technology-Based Learning Initiative

Since introducing the TBL Initiative, ETA has played a leading role in promoting the use of TBL in the workforce system (U.S. DOL 2008b, 3). What began as internal discussions within ETA around the use of TBL has developed into a national initiative within the workforce system with the release of the Training and Employment Guidance Letter (TEGL) No. 17.07, *Using Technology-Based Learning in the Workforce Investment System*, in 2008. ETA's multi-pronged strategy has consisted of a number of complementary projects to inform the field about TBL, share best practices for incorporating technology into the workforce system, and invest in and evaluate promising programs using technology-based services and technology-based skills building strategies. The initiative is evolving through ongoing work. For example, through their investments in the Trade Adjustment Assistance Community College and Career Training (TAACCCT) Grants Program, the Department placed an emphasis on "leveraging advanced training technologies that go beyond traditional online education and accelerate learning and credential attainment through a variety of means...[including] skillful use of technology-enabled new, emergent models of online education and workforce training, such as Massive Open Online Courses (MOOCs); prior learning assessments; and online and blended learning environments that allow larger numbers of workers to participate."⁷ To date, many of the efforts undertaken as part of ETA's TBL Initiative have focused primarily on strengthening the technological component of occupational training. The Initiative's learning technologies first encompassed various forms of distance and online learning. Over time, however, technology has continued to evolve at a rapid pace, which has further extended the reach of TBL. Such developments as the large-scale adoption of mobile technology, expansion of broadband and wireless networks, emergence of digital natives who do not know a world without computers, adoption of natural human interfaces on tablets and smartphones, and the spread of Internet content creators (e.g., bloggers) have increased the integration of technology into everyday life. These changes in technology may affect its application within the realm of both technology-based skills building and technology-based services.

⁷ U.S. DOL, 2013a

Within this highly dynamic context, ETA has expanded its horizons regarding the scope and potential of TBL.⁸ Previous research primarily has examined technology-based skills building, that is, the use of technology to expand the accessibility and flexibility of interventions that promote traditional academic and occupational skills.⁹ This focus is the natural byproduct of considering TBL as an alternative to traditional classroom-based instruction. This focus on technology-based skills building was the emphasis of the 2008 TEGL that addressed the use of TBL in the workforce system.¹⁰ In that TEGL, ETA noted that “WIA and ETA’s policies and guidelines do not prohibit the use of technology to provide training. In fact, WIA’s guiding principles for the development of workforce investment programs encourage local flexibility and innovation for providing training options.”

However, there is nothing about TBL that limits its application to the structured context of occupational training or education. This study recognizes that learning occurs more widely for participants in the workforce system and electronic technology can, and does, contribute to that learning. Specifically, within the workforce system there are a wide variety of employment and training activities, structured and unstructured, where TBL in the form of technology-based services may be used to build knowledge among participants. For instance,

- Learning about oneself through computerized assessments;
- Learning about career and training opportunities through online labor market information systems or other databases of career and technical information;
- Learning appropriate behaviors required on the job through video tutorials on soft skills and post-placement support via video chats;
- Learning about connecting to virtual community support resources as part of the case management process; and
- Learning about the best strategies for attaining successful employment through social networking online with job development and placement service providers.

Further, the use of technology-based services may build technological literacy and skills that may contribute to future engagement with TBL.

Finally, in addition to facilitating the achievement of various learning objectives, technology has the potential to contribute to a range of services provided by the workforce system, from outreach to information sharing to job placement. Many of these functions fall under the heading of core and intensive services, which are used by the largest proportion of WIA participants. One example that touches many aspects of the service menu is O*NET, a free, online database and tool for career exploration and job analysis (www.onetonline.org). The provision of career exploration and job information is among the set of core services mandated by WIA and typically is not delivered in a

⁸ For example, in Training and Employment Notice (TEN) 29-12 from April 3, 2013, ETA announced new features and enhancements to online electronic tools to assist individuals in exploring careers and preparing for and finding employment. http://wdr.doleta.gov/directives/attach/TEN/TEN_29_12.pdf

⁹ For example, Dunham, Estrella, and Nyborg (2011); Dunham, Estrella, Leufgen, and Henderson-Frakes (2011); and Maxwell, Sattar, Rotz, and Dunham (2013)

¹⁰ TEGL 17-17, p. 4

structured classroom setting. It is available exclusively online using basic electronic technology to enable users to customize their searches for career information. It similarly integrates an assessment function to match users' interests with careers for further exploration.

This research reflects the broader perspective on TBL by examining technological content across an array of workforce investment services. As appropriate, the report draws a distinction between technology-based skills building, which directly supports academic, occupational training, or personal development objectives, and technology-based services, which primarily build knowledge or provide information or resources needed to support the workforce development process.

1.3 Structure of the Report

The remainder of the report is organized as follows: Chapter 2 presents the research questions guiding the study and the methodology that was used to collect data in the two surveys. Chapter 3 discusses institutional support for TBL at the state level. Chapter 4 describes the context for TBL use at the local level. Chapter 5 examines how the AJCs use technology-based services and technology-based skills building to provide AJC participants with Title I core and intensive services. Chapter 6 documents the use of technology-based skills building for Title I training services, and Chapter 7 examines technology-based skills building for Title II services. Chapter 8 describes SWA and LWIA respondents' perceptions of key factors underlying the adoption and use of TBL. The report closes with a summary of study results, followed by implications in Chapter 9.

2. Study Approach and Data Sources

In recent years, the ETA has supported the integration of TBL strategies in workforce system services. However, little is known about the extent to which these strategies are being used nationally and under what circumstances and the factors that shape their adoption in the broader field. This study surveyed workforce system policymakers and practitioners regarding the use of TBL for employment, training, and education activities and the factors that influence the policies, decisions, and practices concerning TBL. Specifically, this research was designed to:

- Identify the extent to which states placed a policy or program emphasis on the use of technology-based skills building and technology-based services;
- Explore local program factors that may facilitate or impede decisions to integrate TBL into employment, training, and education activities; and
- Expand knowledge of the current use of TBL in the workforce system, including,
 - The current types of platforms, instructional approaches, and technologies currently in use for Title I core and intensive services,
 - The extent to which technology-based skills building is currently being used by approved training providers, and
 - The extent to which technology-based skills building is currently being used by adult education providers.

This chapter provides an overview of the study approach and data sources. It begins by discussing the research questions that shaped and organized the work. It then documents the approach to addressing those questions: (1) the study respondents; (2) instrument development; (3) survey administration and response rates; (4) analysis methods employed; and (5) limitations of the data and analysis. Further details on the methodology, including the data collection instruments, are included in Appendix B.

2.1 Key Research Questions for the Study

This study was designed to develop an understanding of the use of TBL in the workforce system. To address this issue, the study focused on two related research questions:

What is the current extent and nature of TBL usage in the public workforce investment system?

This first question examines the current scope and mix of TBL usage within the workforce system, with a focus on TBL use for employment, training, and education activities. To understand current usage, Abt examined TBL use over the period of one year, from a variety of perspectives. This documented the extent to which technology-based skills building and technology-based services were provided both within and across LWIAs, including TBL delivery (the mix of providers, platforms, approaches and technologies) and the content areas it addressed. In particular, this study focused on several types of core, intensive, and training services provided under Title I, and the adult education services provided under Title II.

What factors appear to influence TBL usage in the public workforce investment system?

The study also examined variation in TBL usage, particularly the policies and program factors that may affect the types and frequency of use. There are two parts to this question: understanding the context in which TBL is used and understanding practitioners' perceptions of and experience with TBL. First, the study examined state-level policies and supports that may influence TBL adoption and usage at the program level. This question focused on resources and the policies, regulations, and legislative contexts surrounding TBL use. Collectively, these factors shape the extent to which local delivery systems invest in TBL as part of their service delivery strategies. The study also examined these issues at the local level. As discussed, LWIBs, through AJCs and other providers, implement WIA Title I and II services. Integration of TBL into local services may vary considerably depending on infrastructure and resource availability, types of programs, and the technological readiness and receptivity of the service population.

2.2 Data Collection Approaches

Two methods were used to collect data to address the study's research questions. These methods are:

- A survey of state-level workforce system representatives that examined the policies and supports that influence TBL adoption and use, and
- A survey of local-level workforce system representatives that examined local TBL implementation.

To maximize the scope and depth of the study, surveys were administered to the universe of states and LWIAs. The local-level survey was followed by in-depth phone interviews with select respondents to gain additional detail on their answers.¹¹

2.2.1 Respondent population

To ensure consistency in the administration of the state and local surveys, primary respondents were identified at each level who could consistently comment (or solicit information from relevant colleagues or stakeholders) in response to the range of questions in the surveys.

State workforce system representatives.¹² SWA administrators were the primary respondents for the state-level survey. This population was most likely to be knowledgeable about the context for TBL and to have a broad perspective on its implementation within the states' workforce systems. In particular, while states vary in their organizational structures and divisions of responsibilities, generally an SWA (e.g., a state department of labor) and/or the state WIB is responsible for statewide employment and training activities. Additionally, SWAs may also influence the context for TBL at the state level by implementing policy, providing resources or technical assistance to LWIAs, or working with businesses. Where appropriate, state workforce agency administrators consulted with their state WIBs, their staff, or data systems to complete their surveys.

¹¹ See chapter 4 for additional information on these respondents.

¹² For the purposes of this research "state" refers to any area in the United States with a state WIB, i.e., the 50 federated states and the territories of Washington DC, Guam, Puerto Rico, the Virgin Islands, Micronesia, the Marshall Islands, and the Mariana Islands.

Local workforce system representatives.¹³ LWIB Executive Directors were the primary respondents for the local-level survey. The LWIBs are broadly responsible for planning and designing workforce development strategies, including TBL. This is done within the context of broader state policies, as well as priorities established within the LWIA. These stakeholders are positioned to understand the breadth and mix of training and developmental resources within their LWIA and the extent to which that may have been (or can be) marshaled to support TBL. Where appropriate, LWIB Executive Directors drew upon knowledge of local delivery system staff, training and Title II service providers, or their data systems to answer their surveys.

2.2.2 Instrument development

Separate surveys were developed for each of the two respondent populations. Despite the separate data collection tracks, the two instruments were designed together to ensure comparability and integration of analysis and interpretation where feasible. The organization and content of both instruments are summarized in the Exhibit 2.1. Copies of both surveys are available in Appendix C.

Both instruments were primarily designed for online administration. However, the surveys were also available for administration by phone and hard copy for those who preferred not to complete the online version. The instruments were field tested and refined prior to their administration. Pretesting was conducted with members of the primary respondent population who were selected with input from members of the appropriate Regional Offices.¹⁴ Pretest respondents completed the survey instruments, then provided structured feedback on the survey to the study team. The state survey was pre-tested with 5 respondents; the local survey was pretested with 9 respondents.

¹³ Of the 580 LWIAs, most are overseen by LWIBs and LWIB Executive Directors are the primary respondent for those surveys. In 16 states, LWIAs are overseen by state WIBs because there are no local WIBs. In these 16 states, state WIB Executive Directors are considered as equivalent to the local WIB administrators, are the primary respondent to the “local” survey, and are referred to as LWIB Executive Directors in this report. In 16 states, LWIAs are overseen by state WIBs: According to the CareerOneStop website (www.servicelocator.org), in AK, DC, DE, FM, GU, ID, MH, MP, MT, ND, NH, SD, UT, VI, and WY, the state WIB oversees all state LWIAs because there are no local WIBs. In AL, the SWA oversees the LWIA for some state counties.

¹⁴ DOL’s team of Regional Administrators was asked to identify SWA administrators, state WIB chairs, and LWIB Executive Directors and Chairs as potential pre-test respondents within their regions. The state survey was pre-tested with respondents from each of the five state respondents recommended by the Regional Administrators. These five state respondents represented five (of the six) workforce regions. Twenty-two potential respondents were recommended to pre-test the local survey. Subsequent to a review of key characteristics and services, nine were selected to maximize geographic and program diversity. The first three interviews were conducted to inform broad measurement areas and constructs, and familiarity with key terms and content areas. Once the survey was fully drafted, Abt conducted a more traditional pre-test with the remaining six LWIA representatives. Collectively, these six LWIAs represented each of the six workforce regions.

Exhibit 2.1: Summary of the survey instruments**TBL state survey**

Primary respondents: SWA administrators

Estimated length: 30 minutes

Content:

- State policy, guidance, and support for TBL: Questions about the general context for TBL within the state, including measures of institutional commitment¹⁵ to TBL
- TBL and the state Eligible Training Provider List (ETPL): Questions about the use of online or distance learning to support eligible training programs within the state
- TBL challenges or barriers: Questions about the major factors affecting TBL implementation in the state

TBL local survey

Primary respondents: LWIB Executive Directors

Estimated length: 60–90 minutes

Content:

- The LWIA: Questions about the composition of the local AJCs
- WIA Title I core and intensive services: Questions about the use of TBL, particularly technology-based services, to support WIA Title I core and intensive services provided by the local AJCs
- WIA Title I training services: Questions about the use of TBL, particularly technology-based skills building, to support training programs receiving WIA funds
- WIA Title II services: Questions about the use of TBL, particularly technology-based skills building, to support Title II service providers to whom the local delivery system makes referrals
- TBL challenges or barriers: Questions about the major factors affecting TBL implementation in the LWIA?

2.2.3 Survey administration and response

The surveys were fielded during an eight-week period in spring 2013. Contact information for all respondents, including e-mail addresses and phone numbers, were provided by DOL from the America's Service Locator database.¹⁶ This database, which is accessible to the public, contains contact information for organizations associated with the workforce system and is updated regularly by staff at ETA.

To notify respondents of the survey, an advisory was sent from the Assistant Secretary of ETA to all primary respondents, as well as ETA Regional Administrators, state and local workforce agencies and WIBs, and all state WIB Executive Directors (Training and Employment Notice 21-12; U.S. DOL, 2013b). Primary respondents were then sent an e-mail invitation to participate in the survey that contained a live personalized hyperlink to the online instrument (see Appendix C for communications about the survey and the survey instruments). An in-house survey solutions desk was staffed to handle

¹⁵ Henceforth, we use the terms “institutional commitment” or “buy-in” to refer to states that reported they had policies, funding, or legislation specific to TBL within their state workforce investment systems. See Chapter 3 for additional information.

¹⁶ www.ServiceLocator.org

inquiries from the field, provide reminders and encourage survey completion, administer the instrument via phone, and conduct follow-up, as necessary.

Exhibit 2.2 summarizes the total number of each survey that was distributed and the rates of response. The state survey was fielded to 57 representatives of SWAs, and the local survey was fielded to 580 LWIA representatives. A total of 47 state surveys and 399 local surveys were completed by respondents, respectively.¹⁷ The response rate is 81 percent for the state survey and 69 percent for the local survey.¹⁸ The cooperation rate—the proportion of the survey sample that provided complete or partially complete responses—is 84 percent for the state survey and 76 percent for the local survey. The analysis included all respondents who provided data for the relevant survey item(s), regardless of whether they provided complete or partially complete responses.

Exhibit 2.2: State and local survey response

	State survey	Local survey
Number of units		
Survey sample	57	580
Partially complete and complete	49	443
Complete	47	399
Percent of units		
Cooperation rate	86%	76%
Response rate	82%	69%

2.2.4 Analytic strategy

For variables with categorical responses,¹⁹ the report presents unweighted percentages. For items using a continuous response,²⁰ the report presents summary statistics on both the average and distribution (including histograms to summarize distributions and using the top and bottom quintiles to create useful categories).

In addition to describing the prevalence of TBL in the state workforce system overall, Chapter 3 provides a comparison of the prevalence of TBL in states that did and did not report institutional commitments to TBL. To indicate if these differences are meaningful or may be due to chance, the analytic exhibits include an asterisk if the difference is statistically significant at the 10 percent level based on the results of t-tests when comparing two proportions and on Fischer's exact test when comparing sets of categories.²¹

¹⁷ For a survey to be considered complete, the respondent must have provided data for all items presented by the web survey.

¹⁸ Appendix A includes additional information on the analytic sample sizes for each exhibit in the report.

¹⁹ For example: a) Electronic-technology only, b) blended, or c) in-person only.

²⁰ In other words, a numerical response such as the percentage of LWIA participants who took part in any TBL in program year 2011.

²¹ Although the survey sample includes the universe of SWAs, the final analytic sample includes only survey respondents (including those with partially completed surveys). Hypothesis testing investigates whether the

Similarly, although the focus of Chapters 4 and 5 is on describing the prevalence of TBL at the local level, these chapters also describe the characteristics of LWIAs that were in the top quintile and bottom quintile of LWIAs in terms of the percentage of LWIA participants who participate in any TBL. Since the subgroups do not span the entire analytic sample, each subgroup is compared to the remainder of the sample separately.²² An asterisk indicates the statistical significance of each of these comparisons separately at the 10 percent level based on the results of t-tests when comparing two proportions and or chi-squared tests when comparing sets of categories.

Throughout this report, the number of observations included in the analysis varies based on the number of respondents who provided substantive responses to a particular survey item. To include the maximum sample size possible, the analysis includes all respondents who provided data for the relevant data item(s) regardless of the completion status of their surveys. Additionally, many survey items were not fielded to all respondents based on responses to prior survey questions (e.g., respondents were not asked about the mode of delivery for a particular service if that service was not provided). Finally, the analysis excludes respondents who responded “Unknown” to a particular data element. Appendix A provides details on the categories and numbers of respondents excluded from each analysis.

2.3 Study Limitations

Several limitations of this study should be noted:

The analysis presented in this report is descriptive and the results should not be interpreted as providing information about causal relationships. It is important to note that, given ongoing changes in the workforce system, these data represent a snapshot of the use of technology-based skills building and technology-based services in the workforce system at a single point in time. However, the results may be used to develop hypotheses that can be examined using a rigorous experimental or quasi-experimental design.

Although the state and local surveys were fielded to representatives from the universe of states and LWIAs and the response rates were 81 and 69 percent, respectively, it is possible that the survey data are affected by nonresponse bias. That is, the characteristics of the states and LWIAs in our analytic sample may differ systematically from the characteristics of the states and LWIAs in the population at large.²³

While respondents were encouraged to consult with other stakeholders and data sources as needed, these data are limited by respondents’ knowledge, recall, and perceptions. Each survey included questions about the sources respondents consulted to complete the survey and many respondents cited additional sources, indicating that the responses may be reliable reports of activities within the workforce system. The surveys used a broad definition of TBL and respondents’ knowledge, recall, and perceptions about

differences observed in the final analytic sample can be reasonably expected to generalize to the universe (see, for example, Casella and Berger 2002)

²² The analysis adopts this strategy of separate comparisons for substantive reasons (see, for example, Casella and Berger 2002). The variables that characterize LWIAs in the top quintile of TBL participation from the remaining LWIAs may be quite different from those that characterize LWIAs in the bottom quintile. This analytic approach allows us to separately consider what variables differentiate each of the subgroups from the general population of LWIAs.

²³ See Appendix B for the non-response analysis.

what constitutes TBL. Where possible, the report draws distinctions between technology-based services and technology-based skills building. However, in many instances, the data have limited ability to separate the two.

Finally, since the purpose of the study was to describe the workforce system overall rather than to characterize individual cases (e.g., for performance measurement or auditing purposes), no quantitative data are presented on individual respondents or LWIAs. Qualitative responses are linked to respondents only when they gave permission to do so. Further, the analysis does not describe the use and adoption of TBL for subgroups of LWIAs defined by geographic factors (e.g., rural service areas, broadband coverage). Such analyses may be promising avenues for future research.

3. The State Context for Technology-Based Learning

This chapter draws on the unique perspective of the SWA administrators who responded to questions about both the policy and operational contexts that shape the use of TBL in their states' workforce systems. The designated SWA is charged with administering and dispersing WIA funds through the network of LWIBs in their states. In this capacity, SWAs have the potential to influence the use of TBL through policies, priorities, and direct investments in, for instance, infrastructure or technical assistance.

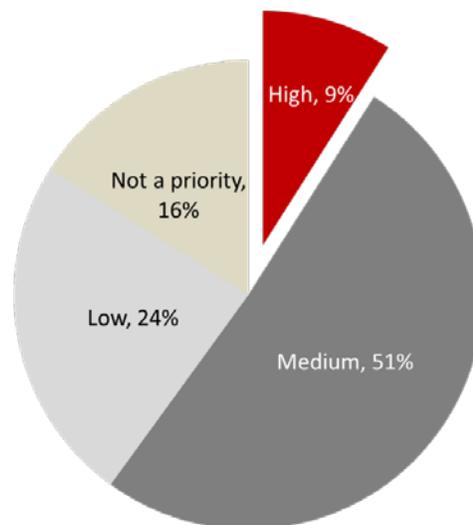
An examination of state policies, strategic priorities, and institutional commitments provides a backdrop for understanding the adoption of TBL within local workforce systems. For example, the composition of a state's ETPL broadly creates parameters for the integration of technology-based skills building into the delivery of training opportunities at the AJCs. SWA respondents' insights into state contexts for TBL serve as important markers of TBL integration into the workforce system as a whole.

To begin, this chapter discusses the prioritization of TBL at the state level, and explores some of factors that contribute to the level of priority it receives. It then describes the types of state-level support for TBL, particularly the extent of institutional commitments to TBL as evidenced by policies, legislation, resource allocation, and current use. The chapter concludes with a discussion of the statewide availability of TBL training programs.

3.1 Prioritization of TBL at the State Level

As shown in Exhibit 3.1, SWA respondents in most states considered TBL use to be a priority (84 percent). Nearly 1 in 10 (9 percent) reported this was a high priority. An additional half (51 percent) reported that the use of TBL was a medium priority to their SWA. Finally, 24 percent reported that TBL use was a low priority and less than one-sixth of respondents (16 percent) reported that it was not a priority in their state.

Exhibit 3.1: Priority for the use of TBL in the state workforce system



Notes: n=45

Additional detail provided in Exhibit A.3.1 in Appendix A

Source: TBL state survey

While these reported priority levels provide preliminary insight into states' focus on TBL, SWA respondents were also asked to expand on their answers. First, SWA respondents who considered TBL use a high priority within their state were asked to explain their rating. Overall, their reflections emphasize TBL's importance in improving the reach of workforce system services. For example:

- *[Using TBL] decreases the time from unemployment to credential to employment.*
- *Learning delivery is no longer taught and received in what has been the norm (face-to-face settings) but [is now taught and received] with the integration of [all types of] technology.*
- *[Our SWA] has prioritized the use of TBL to meet the increased demand for re-employment services for job seeking customers.*

Conversely, SWA respondents who considered TBL a lesser priority were asked a structured question about the reasons behind their ratings (Exhibit 3.2). The two most commonly selected reasons reflected the relative importance of TBL and responsibility for TBL. Specifically, nearly 4 in 10 respondents (38 percent) indicated that other issues were of greater importance.²⁴ The same proportion (38 percent) noted that TBL was considered a local-level (rather than state-level) strategic issue.²⁵

Exhibit 3.2: Reasons for states' priority level for TBL, if it was not a high priority

Reason for priority level	Percentage of state respondents
Other initiatives were higher priorities	38
TBL was considered a local-level strategic issue	38
TBL was considered already widely used within the state's workforce system	20
TBL was not discussed or considered as a possible component of the state's workforce system	18
TBL was considered not appropriate for the state's workforce system	3
Other	10

Notes: n=40

Only states that responded that TBL was "Medium," "Low," or "Not a priority" were asked this question.

Percentages do not sum to 100 since respondents could select more than one response.

Additional detail provided in Exhibit A.3.2 in Appendix A

Source: TBL state survey

An additional one-fifth (20 percent) of SWA respondents reported that TBL was a lesser priority because it was already widely used within their workforce system. The remaining responses reflect a lesser degree of awareness and consideration. Challenges to TBL implementation remain for the approximately one-fifth (18 percent) of the respondents who reported that TBL was not discussed or considered, and an additional 3 percent felt that it was simply not an appropriate component of the state workforce system.

²⁴ E.g., veteran's employment issues, expanding focus on career pathways, and long term unemployment.

²⁵ To further explore the concept of TBL as a local-level strategic issue, the local context of TBL and local-level use of TBL will be discussed further in Chapters 4 and 5 from the perspective of LWIA representatives.

However, these data as a whole suggest that overall awareness of TBL exists and was a relatively important strategy for SWA respondents.

3.2 Institutional Commitments to TBL

While the data above suggest that TBL has achieved a broad base of awareness and consideration at the state level, this may not necessarily translate into adoption and ongoing willingness to invest in the approach. This section examines several measures that, collectively, provide evidence of states' commitments to TBL.

Committing to TBL through state legislation

Washington's State Bill 6295 (of 2008) is an Act aimed at promoting technology-based skills building by creating workplace-based electronically distributed learning opportunities. It includes:

- A demonstration program to develop and evaluate employer workplace-based educational programs with distance learning components
- A study of such programs nationally to understand standards and best practices for increasing student access and increasing the supply of open course materials, including digital open textbooks

SWA administrators were asked a series of questions to gauge the nature and extent of state-level commitments to TBL. In particular, respondents were asked whether or not their states had policies specific to TBL, allocated funding for TBL initiatives, or had enacted legislation specific to TBL within their states' workforce systems (Exhibit 3.3). Collectively, these data provide evidence of each state's institutional commitments to TBL.²⁶

Exhibit 3.3: States' institutional commitments to TBL

Institutional commitments to TBL	Percentage of state respondents
States with institutional buy-in to TBL	
States with policies, funding, or legislation for TBL initiatives	44
Types of institutional buy-in to TBL	
Policies specific to TBL within the state workforce system	32
Funding for TBL workforce investment initiatives	19
Legislation specific to TBL within the state workforce system	2

Notes: n=43-48

Percentages do not sum to 100 since respondents could select more than one response.

Additional detail provided in Exhibit A.3.3 in Appendix A

Source: TBL state survey

²⁶ Note that states that responded "Unknown" to all three items were categorized as not demonstrating institutional commitments to TBL.

In total, 44 percent of the responding states demonstrated their institutional buy-in to TBL through one or more of these actions.²⁷ Specifically, nearly one in five (19 percent) SWA respondents reported that their SWA funded some type of TBL workforce initiative. Additionally, almost one-third (32 percent) reported that their states had policies specific to TBL within their workforce system. Finally, a minority (2 percent) of states had legislation specific to TBL in place.

Exhibit 3.4: Direct funding for TBL

	Percentage of state respondents
Direct funding for TBL	
Funding for TBL initiatives	
State workforce agency funded TBL workforce initiatives	19
Groups eligible to receive direct funding	
Training services providers	57
Local workforce investment boards	43
Local AJCs	29
Businesses	29
AJC participants	29
Source of direct funding for TBL	
Federal	
Federal workforce funds (e.g., Workforce Investment Act or Wagner-Peyser funds)	71
Recovery Act (ARRA) funds, TAACCCT grant, Pathways out of Poverty grant, H-1B Technical Skills Training grant	33
Postsecondary education grants, loans, or scholarships	0
Other federal funds	29
State	
State tax deductions or credits	0
Other state funds	43
Other funding sources	
Grants from private organizations	17
Employer-sponsored funding (e.g., tuition reimbursement)	14
Loans from private lenders (e.g., banks)	0
Reduced tuition or fees	0
Other	40

Notes: Funding for TBL initiatives, n=47.

Only respondents who reported that their SWA funded TBL workforce investment initiatives responded to questions regarding the groups eligible to receive funding and the source of funding. Groups eligible to receive direct funding, n=7. Source of direct funding, n=5-7.

Percentages do not sum to 100 because respondents could indicate multiple responses.

Additional detail provided in Exhibit A.3.4 in Appendix A

Source: TBL state survey

²⁷ The three types of support for TBL were highly related. All three items (policy, funding, and legislation) were significantly correlated ($p < 0.01$) with pairwise Pearson's correlation coefficients ranging from 0.43 to 0.64 (see Exhibit A.3.3a in Appendix A). The statistically significant results of the correlation test provide reasonable evidence that the three measures can be combined into a valid single measure.

Using this definition, the remaining 56 percent of the responding states lacked this demonstrated level of commitment. The distinction between states that demonstrated institutional commitments and those that did not provides an opportunity to explore potential differences across these two broad groups.

Throughout this chapter, findings are compared between these two categories of states. To indicate if these differences are meaningful or may be due to chance, the analytic exhibits include an asterisk if the difference is statistically significant at the 10 percent level based on the results of t-tests for differences in proportions and on Fischer's exact test when comparing sets of categories.²⁸

Providing resources to fund TBL initiatives represents a notable commitment to TBL. Across the 19 percent of states that provided this type of support, there was considerable variation in both the recipients and the sources of those funds. Exhibit 3.4 indicates that the majority of states providing funding (57 percent) reported that training providers were eligible to receive these resources. In addition, the most commonly cited source of funding for state-level initiatives was Federal workforce resources such as WIA or Wagner-Peyser funds (71 percent).

3.3 Additional Statewide Support for TBL

In addition to the broad institutional commitments discussed above, states may opt to promote TBL use through other channels as well. These channels may include outreach, marketing and promotion, or the targeting of specific resources and investments.

SWA administrators were asked about their agency's use or promotion of TBL to complement other statewide objectives. As shown in Exhibit 3.5, nearly three-quarters of respondents (73 percent) reported that their states used or encouraged the use of TBL as a way of advancing other critical statewide objectives. Using PY 2011 as a reference point, these respondents cited TBL's importance in increasing the accessibility of WIA services and increasing individual options and personal flexibility in pursuing WIA services (81 and 80 percent, respectively). Similarly, a majority of SWA respondents reported using or encouraging TBL use for improving cost efficiency in WIA delivery (79 percent), attracting priority target groups (70 percent), and promoting coordination of services across agencies (68 percent).

Exhibit 3.5: SWA used or encouraged use of TBL

	Percentage of state respondents	Percentage of states reporting institutional buy-in	Percentage of states <i>not</i> reporting institutional buy-in
SWA used or encouraged use of TBL	73	80	68

Notes: All states, n=45

States reporting institutional buy-in, n=20

States not reporting institutional buy-in, n=25

* Indicates that the difference between states that do and do not report institutional buy-in is statistically significant at the 10 percent level.

Additional detail provided in Exhibit A.3.5 in Appendix A

Source: TBL state survey

²⁸ See Chapter 2 for additional information on the study's methodology.

As also shown on Exhibit 3.6, most of these findings were consistent across states, regardless of their levels of institutional commitment to TBL. There are no significant differences between states in either their use or encouraged use of TBL. However, among states that do use or encourage use of TBL, there was a significant difference in emphasis. Relative to their counterparts, states determined to have made institutional commitments generally reported a higher likelihood of TBL use or encouraged use in support of increasing the accessibility of WIA services for the eligible population. Among states reporting institutional commitments, 93 percent used or encouraged the use of TBL for increasing the accessibility of WIA services (versus 69 percent of those without institutional commitments).

Exhibit 3.6: SWAs' objectives advanced by use or encouraged use of TBL

Statewide objectives for which the SWA used or encouraged use of TBL (if state used or encouraged use)	Percentage of state respondents	Percentage of states reporting institutional buy-in	Percentage of states <i>not</i> reporting institutional buy-in
Increasing the accessibility of WIA services for the eligible population (e.g., rural populations)	81	93*	69*
Increasing individual options and personal flexibility in accessing WIA services (e.g., employed workers seeking services after hours)	80	87	73
Improving cost efficiency in the WIA delivery system (e.g., limiting facilities costs)	79	87	71
Attracting priority target groups (e.g., younger populations, disabled populations)	70	64	75
Promoting greater coordination of services across agencies (e.g., cross-program sharing of development costs for online courses)	68	67	69

Notes: * Indicates that the difference between states that do and do not report institutional buy-in is statistically significant at the 10 percent level.

All states, n=29-32

States reporting institutional buy-in, n=14-16

States not reporting institutional buy-in, n=14-16

Only states that reported that their SWA used or encouraged use of TBL as a means to promote or complement existing objectives were asked about the statewide objectives.

Additional detail provided in Exhibit A.3.6 in Appendix A

Source: TBL state survey

3.3.1 Use of resources to guide TBL

SWA respondents reported on their SWA's use of resources to guide TBL initiatives within their state's workforce systems (Exhibit 3.7). Approximately one-third (31 percent) of respondents reported using digital content tools to support TBL, with fewer using digital libraries (20 percent), advisors on educational technology (15 percent), and groups of experts focused on educational technology (13 percent).

Respondents were given the opportunity to elaborate on their SWAs use of resources to guide TBL. One SWA respondent described her state's use of a group focused on educational technology:

Our business advisory council meets on a quarterly basis to discuss program development that will meet institutional and student standards and performance.... [This also] includes a review of developing and current technology-based learning to ensure [we're] keeping current with the latest technological business practices and industry standards.

Exhibit 3.7: Use of resources to guide TBL

Resources used to guide TBL	Percentage of state respondents	Percentage of states reporting institutional buy-in	Percentage of states not reporting institutional buy-in
Digital content tools to support TBL	31	31	30
A digital library to support TBL	20	31	13
An advisor on educational technology	15	33*	4*
A group (e.g., commission, committee or taskforce of experts) focused on educational technology	13	19	8

Notes: * Indicates that the difference between states that do and do not report institutional buy-in is statistically significant at the 10 percent level.

All states, n=39-40

States reporting institutional buy-in, n=15-16

States not reporting institutional buy-in, n=23-24

Percentages within columns do not sum to 100 since respondents could select multiple responses.

Additional detail provided in Exhibit A.3.7 in Appendix A

Source: TBL state survey

Other administrators described their use of digital content tools in the context of their widespread applicability within the workforce system. For example:

Currently, we use wikis for document sharing; Moodle-based courses to share resources and tools; and have a private LinkedIn group to share best practices for training customers on social media and job search skills. The [state] workforce system also has a Twitter account to share resources, information and training opportunities.

The world of technology is no longer an isolated matter to the state workforce system. The use of Internet; audio and video tapes; and audio and video conferencing [demonstrates] where digital content is made available [and] are just some of the normal practices that are used to support technology-based learning.

3.4 Statewide Availability of TBL Training Programs

In addition to their insights into the nature of statewide support for technology-based learning, SWA administrators also were asked about the current availability of training programs offering technology-based skills building for training and education across their state. Specifically, respondents were asked a series of questions about the programs that were approved to receive WIA

WIA-funded training services within the median state

- 1,548 eligible programs
- 166 eligible providers

funding. While localities may impose further criteria on approved training programs, a minimum requirement for using WIA funding for training activities is that the program be listed on the state ETPL. Therefore, understanding the availability of technology-based training and education among programs on the state ETPLs is a first step in gaining a broader understanding of its use across the workforce system.

3.4.1 State criteria for TBL training programs

Since the SWA plays an important role in developing and approving a state's ETPL, the survey asked respondents if their state had specified any additional restrictions or requirements related to the use of technology-based training and education above and beyond specifications in WIA.²⁹ While WIA sets no criteria on the specific use of technology-based skills building for training services, nearly one in five respondents (19%) reported that their states have established criteria. Examples cited by survey respondents include:

- *No more than 50 percent of a course of study can be via TBL;*
- *Only accredited universities and community colleges can use distance learning for WIA; and*
- *Online coursework requires some face-to-face instruction by an instructor.*

Within these states, these types of specifications may serve to restrict the overall use of technology-based skills building at the local level.

3.4.2 Availability of information about TBL in training programs

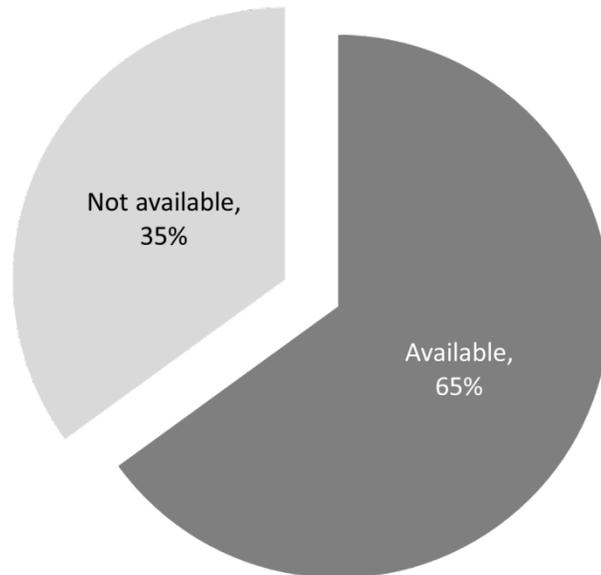
While the use of technology-based skills building for occupational training has been encouraged within the state workforce system, states and LWIBs have leeway in determining whether and how to adopt these training models. In some cases, states may collect information about the prevalence of training programs with TBL by requiring local areas to report on the delivery mode of programs proposed for the state ETPL. SWA administrators were asked whether they gather information about the modes of delivery for the training programs on their ETPLs. Because state data systems varied in the level of detail on accessibility of training programs' delivery modes, the question used the following definitions, with "distance learning" serving as a proxy for the use of technology-based skills building:

- *Distance programs* are programs that are delivered online or through electronic linkages (e.g., videoconferencing). These programs may be entirely distance or they may be blended, offering courses or sessions both by distance and in person
- *In-person programs* are programs that rely on face-to-face instruction (i.e., traditional programs). No course or session was held online or by distance.

As shown in Exhibit 3.8, 65 percent of states had recorded information on the delivery mode for programs on their states' ETPLs. These data potentially provide the opportunity to broadly examine the use of technology-based skills building among eligible training providers in these states.

²⁹ The Act specifies the types of allowable training activities and requirements for determining the eligibility of training providers. However, the Federal WIA statute and its regulations do not preclude eligible training providers from using TBL. Further TEGL 17-07 encouraged states and local areas to review their criteria for assessing training providers' eligibility to ensure that "the use of TBL methods does not preclude an otherwise qualified training provider from eligibility" (U.S. DOL, 2008b, pp. 4-5)

Exhibit 3.8: Availability of information on mode of delivery for ETPL programs



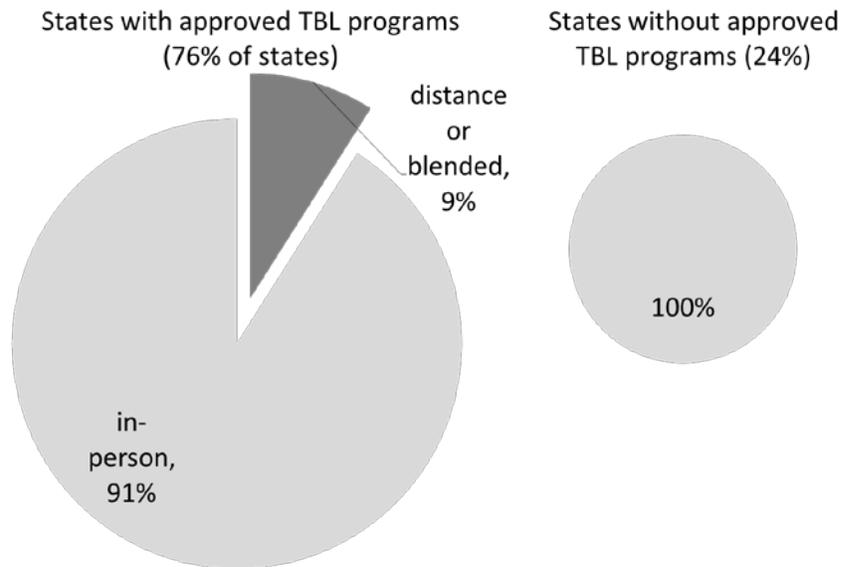
Notes: n=40

Additional detail provided in Exhibit A.3.8 in Appendix A

Source: TBL state survey

Within those states that tracked the use of technology-based skills building among eligible programs, 76 percent reported the availability of any eligible offerings with technology-based skills building within their state (Exhibit 3.9). Further, in states that offered technology-based skills building, respondents indicated 9 percent of programs were delivered using distance or blended means.³⁰ It is important to note that, since these data are not uniformly available, these percentages can serve only as an estimate. Nonetheless, these data indicate that technology-based skills building opportunities for occupational training were available across most states.

³⁰ A 2006 poll indicated that, nationally, approximately 12 percent of organizations on states' ETPLs provide distance learning opportunities for workers and job seekers. No information was available from that poll using programs as the unit of analysis (U.S. DOL 2006).

Exhibit 3.9: Prevalence of TBL for approved training programs in the median state, by presence of approved TBL program

Notes: n=29.

Size of each pie chart is approximately proportional to the percentage of programs for each provider type.

Additional detail provided in Exhibit A.3.9 in Appendix A

Source: TBL state survey

Overall, these findings on the statewide availability of technology-based skills building for training services both characterize the availability of this TBL for training services and will serve as the backdrop for the AJCs' use of technology-based skills building for training (see Chapter 6).

3.5 Summary

A majority of state respondents considered technology-based learning to be a high or medium priority within their state workforce systems. States that considered TBL a high priority offered examples of its benefits, including decreased time from unemployment to credential and employment, and the ability to meet increased demand for re-employment services, while states that considered TBL a medium, low, or not a priority tended to report that they considered TBL a local-level strategic issue or that other initiatives took priority over TBL.

Additionally 44 percent of SWA respondents reported that their states made institutional commitments to TBL through their actions around legislation, policy, or funding decisions. States were focusing on TBL and establishing a supportive and structured context for local implementation. It is equally important to note that states that had not made such institutional commitments appeared to recognize the value of TBL and the complementary role it can play in advancing other statewide objectives.

SWA responses also suggest that states generally had an infrastructure that was largely in place to track the extent to which technology-based skills building was used among eligible occupational training programs. Approximately 60 percent of all states that responded to the survey gathered sufficient information to monitor the mix of service delivery modes (including TBL) that were used in their

approved training programs. Furthermore, technology-based skills building training opportunities were available in most (74 percent) of those states. In summary, while state commitments vary, SWAs were establishing the commitments and infrastructure needed to support continued use of TBL within the workforce system.

4. The Local Context for Technology-Based Learning

In addition to the state-level perspective summarized in the previous chapter, the research was also structured to gather insights from LWIAs. To this end, an online survey was conducted with the Executive Directors of LWIBs, who are broadly responsible for planning, designing, and implementing workforce development strategies at the local level. To complement the survey findings, a series of in-depth telephone interviews were conducted with nine LWIA respondents to gather additional detail on specific technology-based learning efforts that they referenced in completing their surveys.³¹

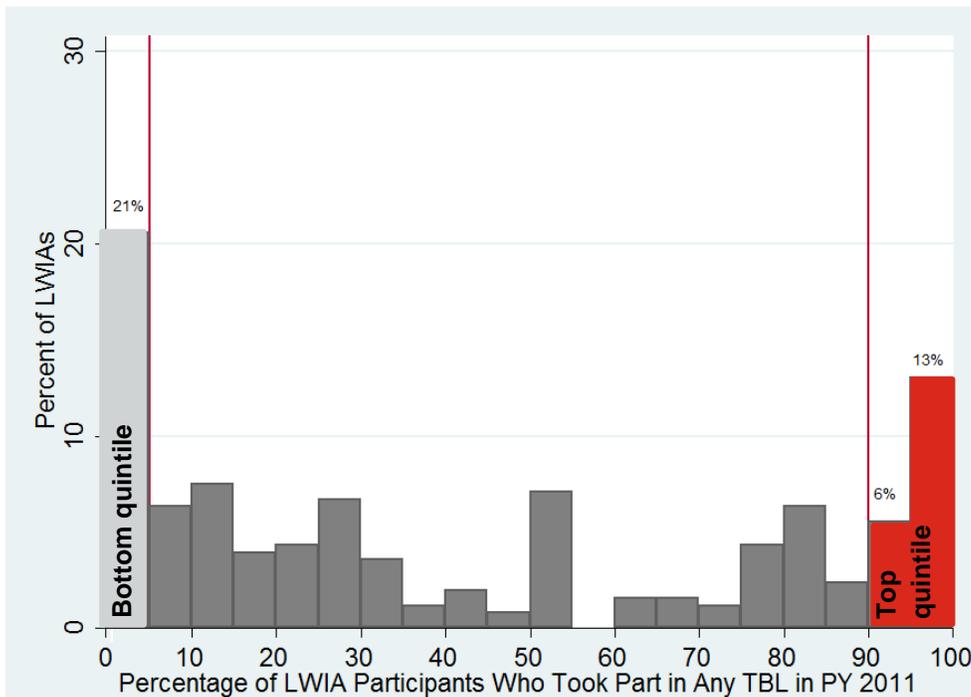
Where appropriate and feasible, this analysis examines differences in perspective among the LWIA respondents whose AJCs engaged with TBL for the greatest and least percentages of their participants. Specifically, the analysis examines two groups (see Exhibit 4.1):

- LWIAs in which at least 90 percent of AJC participants engaged in TBL during PY 2011. These LWIAs represent the top 20 percent, or top quintile, of TBL participation.
- LWIAs in which less than 5 percent of AJC participants engaged in TBL during that same year. These LWIAs represent the bottom 20 percent, or bottom quintile.

While TBL offerings within AJCs may include both technology-based skills building and technology-based services, TBL participation in these contexts was likely skewed towards technology-based services. This was due to the fact that core and intensive services account for the largest proportion of WIA participants and these services, if they incorporate TBL, were more likely to do so in the form of technology-based services.³²

³¹ In their surveys, respondents were asked to describe any core or intensive services provided by their AJCs and which used “any cutting edge technologies or innovative TBL.” Eighty-eight LWIA representatives responded to this question. Their answers were analyzed and 18 respondents whose programs or practices appeared to use TBL in an innovative way were invited to provide additional information about their programs by e-mail or phone. Follow-up interviews were conducted with each of the nine LWIA participants who responded.

³² See Chapter 5 for additional detail on technology-based services to promote core and intensive objectives within the workforce system

Exhibit 4.1: Distribution of reported TBL participation across LWIAs

Notes: n=253

Additional detail provided in Exhibit A.4.1 in Appendix A

Source: TBL local survey

To indicate whether differences are meaningful or may be due to chance, the analytic exhibits include an asterisk if the difference is statistically significant at the 10 percent level based on the results of t-tests when comparing two proportions and on chi-squared tests when comparing sets of categories.³³ For example, LWIAs in states that reported having made institutional commitments to TBL had significantly more of their participants engaged in TBL than LWIAs in states without such commitments.³⁴ While this categorization of LWIAs into the top and bottom quintiles is based on respondents' estimates, those estimates are broadly indicative of the spread of TBL use throughout their service populations. As such, these subsamples of LWIA respondents will be used throughout the analysis as a way to identify and compare the most and least active users of TBL.

This chapter begins with a discussion of the resources and services offered within the American Job Centers during PY 2011. Against this broad landscape of services, the research then examines a number of ways LWIAs may have supported the integration of technology-based skills building and technology-based services into their service delivery. The areas of investigation include marketing and promotion of TBL, investment in and enabling access to equipment and infrastructure, and the provision of participant support in the use of technology.

³³ See Chapter 2 for additional information on the study's methodology.

³⁴ See Appendix A for additional detail.

4.1 Use of Technology to Deliver Services through American Job Centers

AJCs provide central access points within each LWIA for a range of job search, placement, training, and education services. While these services are traditionally provided in-person at an AJC location, services may now additionally be accessed using electronic services, either through:

- Virtual AJCs (e.g., Virtual One-Stop), or
- Electronic linkages to (physical) AJCs, which can also be accessed in person.

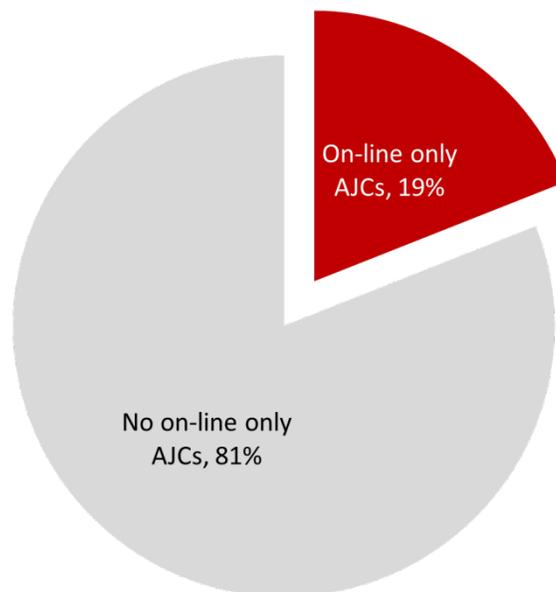
The **Central Massachusetts WIB** created and maintains a **website** affiliated with its AJCs and specific to Science, Technology, Engineering, and Math (STEM). This website is an example of technology-based services within the workforce system. The site, www.STEMpower.org, is used to communicate with and connect STEM jobseekers and employers. The website includes:

- information on local STEM news;
- a jobseeker discussion board;
- an online calendar of events;
- a blog, which includes curated content from the community; and
- job vacancy postings

The community of members can subscribe to the website and receive updates via e-mail. The website has had as many as 1,200 members, with 300 very active members who engage with site content regularly.

Just under one-fifth (19 percent) of LWIBs surveyed contracted with one or more virtual AJCs to provide services (Exhibit 4.2).

Exhibit 4.2: Prevalence of virtual AJCs across LWIAs



Notes: n=405

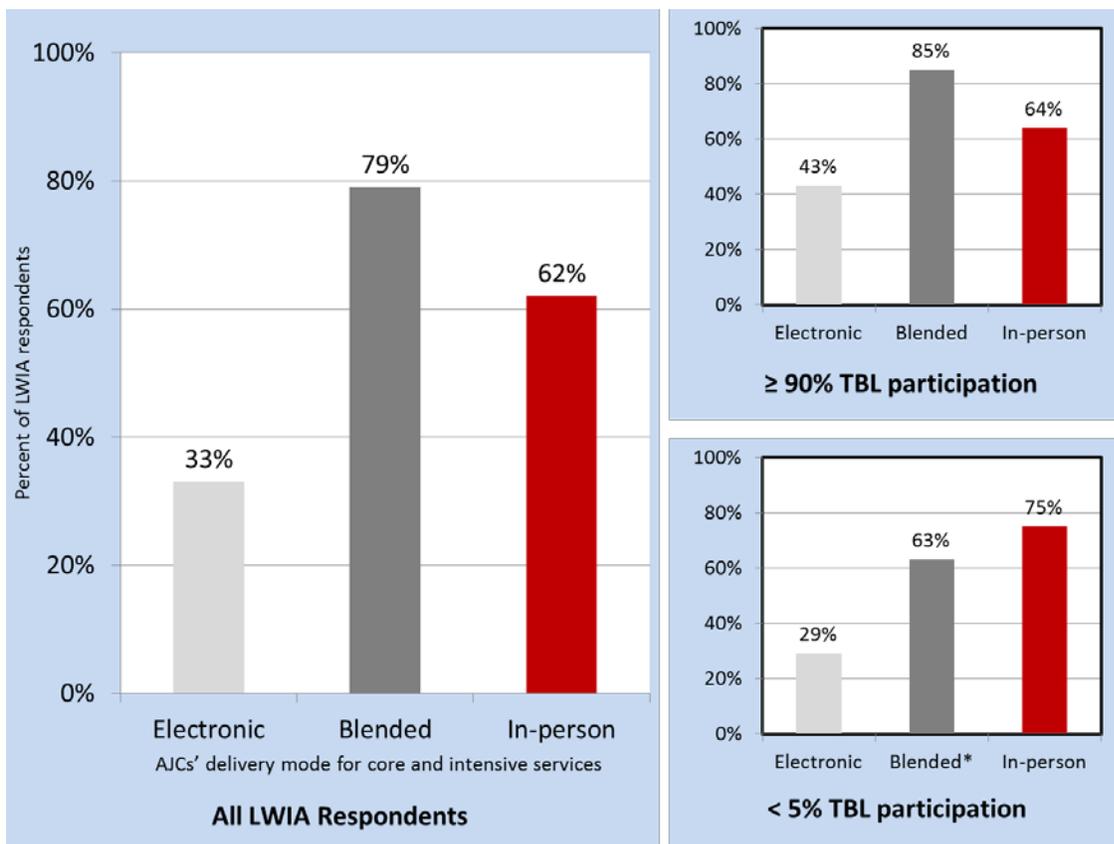
Additional detail provided in Exhibit A.4.2 in Appendix A

Source: TBL local survey

Additionally, it should be noted that the availability of virtual AJCs did not vary by TBL participation across LWIAs. These virtual AJCs were equally distributed across the LWIA landscape and thus do not appear to have contributed to variation in AJC participants' use of TBL.

TBL may also be incorporated into the services provided at (physical) AJCs. Exhibit 4.3 shows that one-third (33 percent) of LWIA respondents reported that their AJCs offered some services using only electronic technology (e.g., virtual desktops, e-mail distribution lists, videoconferencing). Additionally, most LWIA respondents (79 percent) reported that, in addition to in-person services, AJCs offered blended services that combine in-person access and electronic technology use. Later chapters describe how electronic technology was used in a range of workforce services, including assessment, career readiness, job search, training, and education.

Exhibit 4.3: Delivery modes employed by (physical) AJCs



Notes: * Indicates that the difference between subgroup and remainder of sample is statistically significant at the 10 percent level.

All LWIAs, n=431.

≥ 90 % TBL participation, n=47

< 5% TBL participation, n=52

Only respondents who reported that their LWIA had one or more Comprehensive American Job Center completed this question.

Percentages across rows do not sum to 100 since respondents could select more than one type of delivery mode.

Additional detail provided in Exhibit A.4.3 in Appendix A

Source: TBL local survey

Differences in levels of TBL participation across AJCs appear to be based in the prevalence of technology-based skills building and technology-based services offerings within physical AJCs (Exhibit 4.3). Specifically, LWIAs with less than 5 percent of AJC participants engaged in TBL (i.e., the bottom quintile) were significantly less likely than others to have blended offerings. That is, not only did LWIAs in the bottom quintile have low levels of TBL participation, they also had fewer TBL options within their AJCs. While this may appear to be an intuitively obvious relationship (fewer offerings equates to lesser participation), the reverse does not seem to hold. Specifically, the data indicate that there were *not* significant differences between LWIAs in the top quintile of TBL participation and other LWIAs. While this latter finding may be partially attributable to sample sizes, it may also suggest that LWIAs with greater than 5 percent TBL participation already had some of the infrastructure in place within their AJCs to increase their TBL participation. In addition, it implies that a TBL strategy may require resource availability combined with proactive efforts to engage AJC participants. This important distinction is discussed in greater detail below.

4.2 Supports LWIAs Offered Participants for TBL

In considering the use of TBL at the local level, it is important to make the distinction between provision and engagement. In other words, AJCs may offer a variety of technology-based skills building and technology-based services, but there may be other factors at play that impede participants' full engagement with those services. This may include, for instance, prospective participants' levels of technological literacy, alignment of TBL opportunities with service needs, and access to the necessary equipment or technology. This section investigates these types of efforts to engage participants with TBL.

4.2.1 LWIAs' strategies to promote TBL

Promotion is a particularly critical dimension of the TBL strategy since AJCs may seek to establish interest and credibility among a whole host of stakeholders including participants, providers, and businesses. LWIA respondents emphasized the importance of promoting TBL to participants as a step in engaging them with the technology. As shown in Exhibit 4.4, more than 70 percent of LWIA respondents reported that their AJCs promoted TBL to their participants. Moreover, emphasis on promotion varied significantly by levels of TBL participation. In particular, the respondents in the highest quintile of TBL participation were significantly more likely to promote TBL (87 percent).

Exhibit 4.4: Prevalence of promotion of TBL to AJC participants

Was TBL promoted?	Percentage of LWIA respondents	Percentage of LWIAs with ≥90% TBL participation	Percentage of LWIAs with <5% TBL participation
Promoted TBL to AJC participants	72	87*	46*

Notes: All LWIAs, n=425.

≥ 90 % TBL participation, n=46.

< 5% TBL participation, n=52.

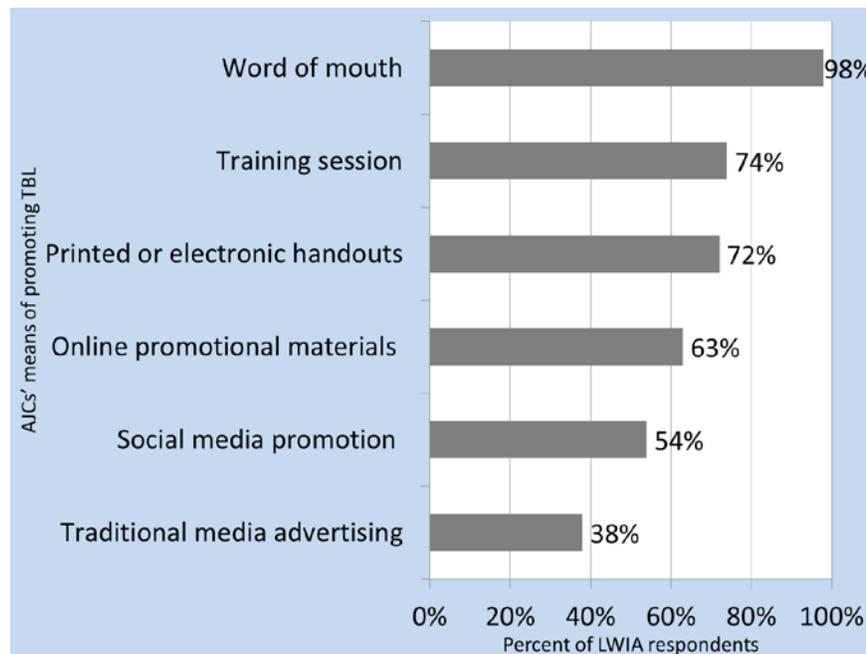
* Indicates that the difference between subgroup and remainder of sample is statistically significant at the 10 percent level.

Additional detail provided in Exhibit A.4.4 in Appendix A

Source: TBL local survey

AJCs used a variety of means to promote TBL (Exhibit 4.5). Among those engaged in promotion, nearly all (98 percent of those promoting TBL) relied on word of mouth, for example, through case manager recommendations. Other common forms of promotion included using training sessions and handouts (74 and 72 percent, respectively). Additionally, many respondents reported using technology-based means or media to promote TBL. Over half of the respondents reported using some form of online promotional materials (63 percent) or social media promotion (54 percent) to advance their TBL agenda. Finally, the use of electronic and online promotions (63 percent) appears to be favored over traditional media marketing modes (38 percent).

Exhibit 4.5: Means of promoting TBL



Notes: n=291-300

Percentages across rows do not sum to 100 since respondents could select more than one type of promotion.

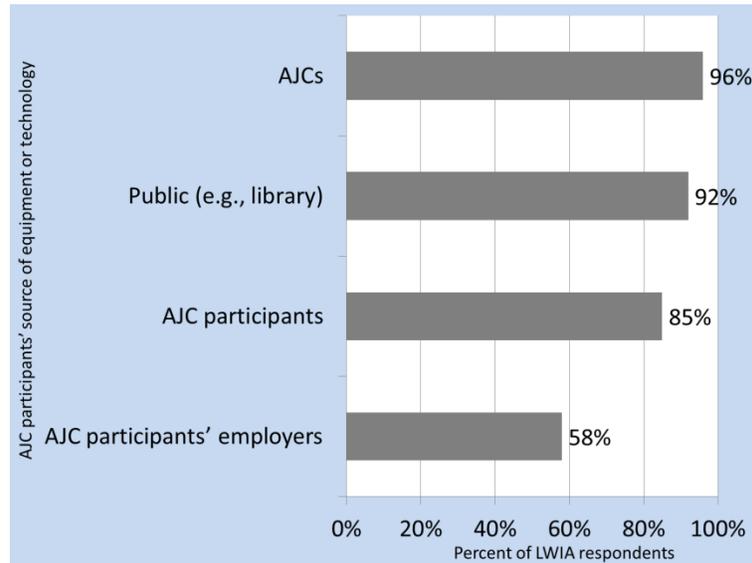
Additional detail provided in Exhibit A.4.5 in Appendix A

Source: TBL local survey

4.2.2 Equipment or technology used by AJC participants

While TBL delivery options have the capacity to increase cost efficiency, they often require up-front investments in equipment and/or infrastructure. The data regarding these investments should be reviewed in the context of a resource-constrained delivery system that may prioritize services to a lower-income population who may not have a steady source of income or many assets.

Respondents reported that AJC participants had access to basic computer and electronic technology that might be used for technology-based skills building, technology-based services, or both. Most LWIA respondents reported that their AJCs provided computers for their participants' use (95 percent; Exhibit 4.6). Moreover, these respondents reported that they could rely on participants to have some access to computer equipment outside of the formal delivery system. This was most commonly available through other public sources, such as libraries (92 percent), or personal equipment (85 percent).

Exhibit 4.6: Reported source of equipment or technologies used by TBL participants

Notes: n=221-391

Additional detail provided in Exhibit A.4.6 in Appendix A

Source: TBL local survey

In addition to basic computer access, the survey shows that AJCs had made considerable investments in technology that improves the access of their participants (Exhibit 4.7). Nearly all offered some type of on-site Internet access (94 percent) and more than half offered access to video or audio devices to their participants (63 and 54 percent, respectively). The data also indicates that fewer investments were made in technologies that were either still emerging for TBL use (mobile devices, 9 percent of respondents) or that required some level of critical mass to fully justify widespread availability (virtual desktop, ³⁵ 31 percent of respondents). It is important to point out that the investments in remote access (e.g., virtual desktops) appear to have gained considerable traction among those LWIAs in the top quintile of TBL participation, where half of LWIA respondents (51 percent) reported that their AJCs made this technology available.

³⁵ Virtual desktops may allow participants to access remotely software licensed by the AJCs.

Exhibit 4.7: Equipment or technologies made available to AJC participants

Equipment or technology	Percentage of LWIA respondents	Percentage of LWIAs with ≥90% TBL participation	Percentage of LWIAs with <5% TBL participation
On-site computer or on-site laptop or computer lab	95	98	78*
On-site Internet access	94	100*	80*
Video device (e.g., DVD player, television)	63	85*	37*
Audio device	54	79*	28*
Tele-conferencing or videoconferencing equipment	36	46	16*
Virtual desktop or remote access	31	51*	10*
Loaned computer or loaned laptop	11	20*	4*
Mobile device	9	16	2*

Notes: * Indicates the difference between subgroup and remainder of sample is statistically significant at the 10 percent level.

All LWIAs, n=362-390

≥ 90 % TBL participation, n=43-46.

< 5% TBL participation, n=50-52.

Additional detail provided in Exhibit A.4.7 in Appendix A

Source: TBL local survey

4.2.3 Activities supporting participants' use of technology

A commonly cited barrier to TBL use in general was participants' low levels of technological literacy or comfort (see, for example, TEG 17-07). This can be a particularly relevant concern given both the actual pace of technological change and the accompanying perception (warranted or not) that participants' skill levels may not be sufficiently current. LWIA respondents were asked whether their AJCs used any specific intake or orientation activities to gauge their participants' readiness to pursue services using TBL (Exhibit 4.8). Nearly two-thirds of respondents (65 percent) reported that their AJCs provided an assessment or interview to determine their participants' technology readiness. Fewer respondents (48 percent) reported their AJCs used assessments or interviews related to course hardware, software, or equipment requirements.

Beyond the initial assessment, respondents reported that their AJCs provided some degree of proactive intervention to enhance participants' comfort and skill level in using the learning technology. Approximately two-thirds (66 percent) reported that technical assistance was offered, while one-third (37 percent) reported that AJCs offered a formal orientation to course technology or to a learning management system.

Exhibit 4.8: Activities supporting the use of technology

Activities to support use of technology	Percentage of LWIA respondents	Percentage of LWIAs with ≥90% TBL participation	Percentage of LWIAs with <5% TBL participation
Assessment activities			
Assessment or interview to assess technology readiness	65	78	38*
Assessment or interview related to course hardware, software, or equipment requirements	48	53*	34*
Support activities			
Technical assistance to support participants' use of TBL	66	82*	33*
Formal orientation to course technology or to learning management system	37	47	27*

Notes: * Difference between subgroup and remainder of sample is statistically significant at the 10 percent level.

All LWIAs, n=349-372.

≥ 90 % TBL participation, n=21-36.

< 5% TBL participation, n=13-19.

Additional detail provided in Exhibit A.4.8 in Appendix A

Source: TBL local survey

The data in Exhibit 4.8 shows a comparison in the levels of support activities across the top and bottom quintiles of LWIAs defined by their percentage of AJC participants using TBL. Among LWIAs with at least 90 percent of AJC participants engaging in TBL, the vast majority (82 percent) reported investing in technical assistance. Likewise, LWIAs with low levels of TBL participation were significantly less likely than others to include any of these support activities (e.g., 33 percent reported investments in technical assistance). The message across these findings emphasizes the idea that these activities not only address the technological skills and the comfort level of participants, but also may actually serve to attract interest in technology-based skills building or other technology-based services. Further, engagement in these support activities may complement efforts to engage more participants in TBL and build technology literacy among participants.

4.3 Summary

Information from LWIA respondents described a profile of efforts to integrate TBL into local service offerings and delivery systems. Seventy percent of LWIA respondents reported their AJCs offered participants some services through a blended mode; an additional 30 percent offered some form of exclusively electronic services. An additional one in five of the LWIAs offered services through virtual AJCs.

LWIA respondents recognized the importance of promoting TBL use, with 70 percent reporting that they engage in some form of proactive outreach to participants. Nearly all LWIA respondents (upwards of 90 percent) reported that their AJCs provided participants with foundational equipment for TBL, computers and Internet access. Further, 66 percent of respondents reported that their AJCs were supporting participants' use of technology through targeted technical assistance.

Efforts by AJCs to engage participants in either technology-based skills building or technology-based services may contribute to greater utilization of TBL. At the most active end of the spectrum, LWIA respondents reported nearly 90 percent of participants engaged in TBL—this represents 20 percent of LWIAs, or the top quintile. Their counterparts at the least active end of the spectrum (bottom quintile of LWIAs) reported TBL participation levels of less than 5 percent. These two categories of LWIAs differed, not only in their levels of TBL participation but also in the contexts they established for technology-based skills building and technology-based services. LWIAs in the top quintile were more likely than others to report their AJCs used blended delivery modes for services, promoted TBL usage, provided participants with access to technology, or supported participants' use of technology through technical assistance.

5. Technology-Based Learning for WIA Core and Intensive Services

This chapter reviews the use of TBL to support the delivery of WIA Title I core and intensive services. Core services involve the provision of information on job openings, the labor market, and providers of training services, youth activities, adult education, vocational rehabilitation activities, and vocational education. Intensive services involve individualized activities such as counseling and assessment to help customers choose training programs and select occupational areas. Core services are available universally to any adult or dislocated worker within the local delivery system; intensive services are targeted and available to a subset of participants deemed to need additional support to obtain or retain employment.³⁶

TBL may be incorporated **into core and intensive services** in a number of ways. The majority of activities can best be characterized as having the potential for incorporating technology-based services, including:

- Searching computerized or online databases to obtain labor market information, conduct career exploration, or search for jobs;
- Connecting with employers and other job seekers via social media and social networking sites; and
- Accessing presentations and webinars by career speakers asynchronously through digitally archived recordings.

However, technology-based training and education can be used in support of core and intensive services to build specific skills, such as:

- Practicing interviewing skills using avatars in a virtual work setting and
- Learning job application skills through web-based resume writing tutorials.

While WIA core and intensive services represent distinct types of services, this study presents them in an integrated discussion. Collectively, core and intensive services are typically provided directly by AJCs, under contract and oversight from LWIBs. As such, their integration of TBL was likely shaped by common factors within the LWIA. This stands in contrast to the provision of training under WIA (see Chapter 6) or Title II adult education services (see Chapter 7), where use of technology-based skills building is more likely to be influenced by external providers.

The chapter includes a review of service delivery methods and platforms used to access services during PY 2011. Where possible, it provides details on core and intensive services separately and together. These issues will be explored for the universe of LWIAs while making comparisons, as appropriate, to those with at least 90 percent of AJC participants engaged in TBL and those with less than 5 percent of AJC participants engaged in TBL (i.e., the top and bottom quintiles of TBL participation, respectively; see chapter 4). To indicate if these differences are meaningful or may be due to chance, the analytic exhibits include an asterisk if the difference is statistically significant at the 10 percent level based on the results of t-tests when comparing two proportions and on chi-squared tests when comparing sets of categories. These subsamples of LWIA respondents serve as a proxy for identifying and comparing the most and least active users of TBL.

³⁶ Adults and dislocated workers who are unemployed and unable to obtain employment through core services, who are in need of more intensive services to obtain employment, or who are employed and in need of more intensive services in order to obtain or retain employment that allows for self-sufficiency (WIA section 134).

5.1 Delivery Mode for Specific Core and Intensive Services

To determine the extent to which TBL was being incorporated into the delivery of core and intensive services, LWIA respondents were asked how these services were delivered within their local delivery system. They could describe their AJCs' services as:

- *Electronic technology services*: participants could access services only through electronic technology (e.g., online, in a computer lab, videoconferencing);
- *Blended services*: participants could access services both through electronic technology and in person; or
- *In-person services*: participants could access services only by physically visiting the local delivery system (e.g., in-person, one-on-one intake or counseling; a traditional classroom-based course).

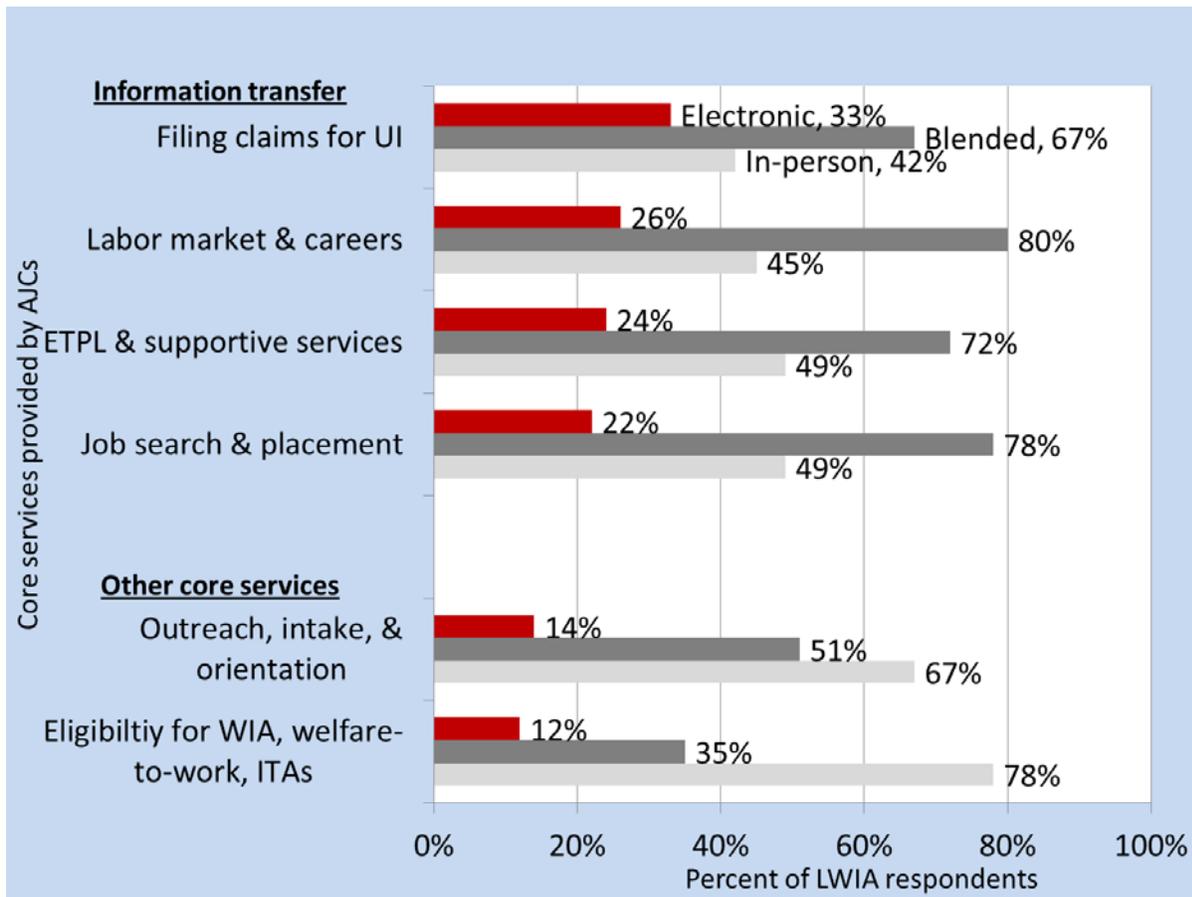
Within this framework, TBL encompasses the categories of electronic technology services and blended services.

Exhibit 5.1 summarizes the survey findings for the delivery of core services. In reviewing these data, it is important to remember that, in this context, the term “learning” (in technology-based learning) must be applied broadly. That is, the delivery of core services is often about information access and information sharing to promote solid planning and decision-making by participants. As such, the use of TBL for these services likely refers to technology-based services.

Three aspects of Exhibit 5.1 are noteworthy:

- **Active use of electronic (only) technology**: The Department made investments in an array of online resources that support the delivery of core services. The baseline level of services delivered via electronic (only) technology-based services likely reflects active use of such resources as the Healthcare Virtual Career Network (www.vcn.org) for career exploration and training information related to health care careers, and My Skills My Future (www.MySkillsMyFuture.org) for matching occupational experiences with skills needed in other occupations.³⁷
- **TBL for information sharing**: Many core services centered on information transfer rely on a blended approach, combining both in-person and electronic technology services. This trend in technology-based services for knowledge building holds for information flowing both to and from participants. Approximately three-quarters of respondents reported that their AJCs integrated a blended component in the labor exchange and job search process (e.g., labor market and career information, 80 percent; and job search and placement, 78 percent). Further, about a quarter of respondents reported these services were available in their LWIAs using only electronic technology (labor market and career information, 26; and job search and placement, 22 percent).

³⁷ A complete listing of online resources made available by DOL is included in Training and Employment Notice Number 29-12 at http://wdr.doleta.gov/directives/attach/TEN/TEN_29_12.pdf.

Exhibit 5.1: Delivery mode for core services provided by AJCs

Notes: n=396-421

Only respondents who reported that their LWIA provided these types of services completed these questions.

Percentages across rows do not sum to 100 since respondents could select more than one type of delivery mode for each category of services provided.

Additional detail provided in Exhibit A.5.1 in Appendix A

Source: TBL local survey

- Commitment to in-person services:** Despite the prevalence of blended options and the presence of exclusively electronic options, many LWIA respondents reported that their AJCs were providing exclusively in-person services. Their commitment to providing in-person services is apparent in bringing participants into the system (outreach intake and orientation, 67 percent). Similarly, LWIA respondents reported their AJCs' commitment to in-person support for the key knowledge transfer activities discussed above, such as the use of labor market information (45 percent) and exploration of career, training, and support service options (78 percent).

Collectively, the data indicate that technology-based services, particularly blended approaches, have been integrated into the delivery of core services. At the same time, the use of in-person delivery options for some services suggests that in-person service delivery remains important and/or that technology-based services approaches are not currently viable.

Exhibit 5.2 provides an overview of the methods used in the delivery of intensive services that were offered within AJCs. In contrast to core services, intensive services may incorporate TBL through *both*

technology-based services and technology-based skills building. Overall, this profile suggests that, relative to core services, these activities were less likely to have incorporated any type of electronic technology into their delivery. Several points are noteworthy:

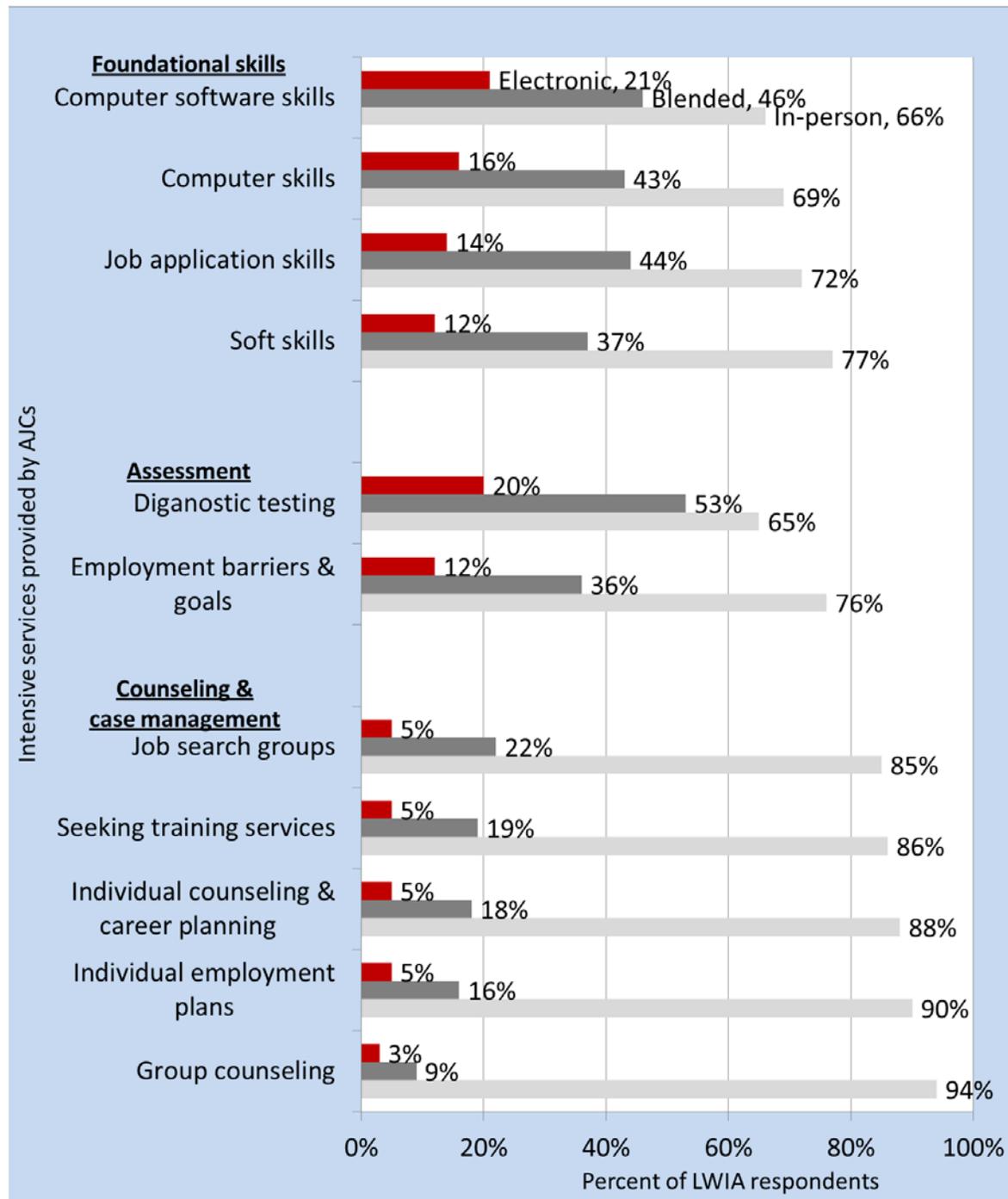
- **Technology-based skills building for developing foundational skills:** Those intensive services intended to develop foundational skills (e.g., job application skills) had established a level of blended delivery among 40 to 50 percent of the LWIAs that responded. The lowest prevalence of technology-based skills building for foundational skills was in the delivery of soft skills (37 percent), which were more likely to rely on interpersonal interaction and instruction.

The **Workforce Alliance of South Central Kansas**' most popular classes are a series of **blended courses to build Microsoft Office skills**. Through online content and in-person instruction, participants **build technological literacy**. Classes are kept relevant as instructors **incorporate new developments** in workforce trends and work with Microsoft specialists who assess utility and **certifications** for the classes. Businesses have contracted with the LWIB to provide sessions for employees.

- **Technology-based services for assessment:** Relative to other intensive services, the assessment functions were more likely to be delivered using a blended approach. Similar to some of the core services, assessment can be characterized as a form of information transfer or knowledge building. Perhaps not surprisingly, technology-based services were reported to be more prevalent in support of diagnostic testing (53 percent blended; 20 percent electronic technology only) than in support of assessments designed to identify individual employment goals and barriers (35 percent blended; 12 percent electronic technology only).
- **In-person counseling and case management:** Counseling and case management services had a low use of electronic technology and were dominated by in-person delivery options. However, the finding that blended delivery options for counseling and case management services were reported by between 10 and 20 percent of the respondents indicates that there is potential for these services to be delivered using blended approaches.

While these general trends in intensive service delivery hold for LWIAs at the top and bottom of the TBL participation distributions, there were some significant differences between the groups (see Appendix A). Generally, the delivery modes used by the top quintile of LWIAs were not very different from those used by other LWIAs. This suggests that the current trends for incorporating TBL into many of these services may have been leveling out since the most active users tend to mirror the broader average. There are some notable exceptions. LWIAs with at least 90 percent of participants engaged in TBL were more likely than others to use technology-based services for bringing participants into the system (66 percent blended and 26 percent electronic only). These most active LWIAs were also more likely to report using electronic-only job search groups, though such users were a minority (14 percent).

Exhibit 5.2: Delivery mode for intensive services provided by local delivery systems



Notes: n=278-423

Only respondents who reported that their LWIA provided these types of services completed these questions. Percentages across rows do not sum to 100 since respondents could select more than one type of delivery mode for each category of services provided.

Additional detail provided in Exhibit A.5.2 in Appendix A

Source: TBL local survey

At the other end of the distribution, LWIAs in the bottom quintile of TBL participation tended to be less likely than others to report using blended delivery for most core and intensive services. These LWIAs were also less likely to deliver intensive services using only electronic means. The exception to the lesser use of technology-based services among bottom quintile LWIAs was counseling or case management services, where LWIAs at all participation levels predominantly used in-person services.

5.2 Use of TBL for Core and Intensive Services

The previous section introduced the various core and intensive services with an emphasis on the predominant delivery mode(s) by which they were offered to participants. The discussion that follows looks more closely at the TBL component itself in order to characterize the use of technology. As illustrated above, TBL for core and intensive services may primarily be considered technology-based services, but may also include technology-based skills building. To understand TBL usage by AJCs, the discussion reviews the scheduling modes for core and intensive services. It also examines the predominant platforms being used to access core and intensive services that use TBL. This section examines only relevant responses (i.e., respondents reporting the use of either electronic or blended delivery), and combines core and intensive services to increase sample sizes and analytic scope.

5.2.1 Scheduling modes for core or intensive services

One feature of TBL is that it can allow for asynchronous learning, that is, learning at each participant's individual pace and schedule. In contrast, synchronous learning, as occurs in a traditional classroom, requires that both the instructor and the learner be in the same (physical or virtual) place at the same time.

Through technology, core and intensive services can be offered either asynchronously, synchronously, or using a combination of both scheduling modes. Exhibit 5.3 summarizes respondents' characterization of the scheduling modes for core and intensive services in their AJCs. While the vast majority of respondents reported their AJCs offered these services on a fixed schedule (89 percent), the near-universal reported use of combined (synchronous and asynchronous) scheduling suggests that AJCs were seeking a higher degree of flexibility. Finally, somewhat fewer AJCs offered any core and intensive services on a strictly asynchronous schedule (79 percent). It is important to note that this percentage was significantly lower among LWIAs in the bottom quintile of TBL participation (70 percent), suggesting that a number of these AJC may be able increase their use of asynchronous delivery and add choices for participants.

AJCs in **Nashville (TN)** are using technology to better prepare job seekers for employment interviews. These job application skills are taught both **in person** and using **blended** delivery modes **combining synchronous and asynchronous scheduling**. In addition to providing participants with interviewing techniques, guidance, and practice in an in-person workshop, local service providers also **videotape practice interviews** and provide opportunities for self-review under the guidance of a career coach at a later point in time. Other local delivery systems subscribe to websites, such as **InterviewStream** or **Perfect Interview**, that provide interview question banks, model good interviews, and record practice interviews for sharing with coaches asynchronously.

Exhibit 5.3: Scheduling modes for core or intensive services

Scheduling modes	Percentage of LWIA respondents	Percentage of LWIAs with ≥90% TBL participation	Percentage of LWIAs with <5% TBL participation
Asynchronous: Services occurred individually, at the participants' own pace (i.e., there were no scheduled class sessions)	79	85	70*
Combined: Services occurred both during scheduled sessions and individually, at the participants' own pace	93	100*	82*
Synchronous: Services occurred at a scheduled time and location (in either a physical or virtual classroom)	89	85	92

Notes: * Indicates that the difference between subgroup and remainder of sample is statistically significant at the 10 percent level.

All LWIAs, n=415-420.

≥ 90 % TBL participation, n=46.

< 5% TBL participation, n=50-52.

Percentages across rows do not sum to 100 since respondents could select more than one type of scheduling mode for their core and intensive services.

Additional detail provided in Exhibit A.5.3 in Appendix A

Source: TBL local survey

5.2.2 Platforms used for core or intensive services

In this research, TBL, by definition, encompasses a wide variety of technology-based media, platforms, and/or communication devices and modes for either service provision or skills building. Exhibit 5.4 indicates that the personal computer (laptop or desktop) was the most common platform used to access any core or intensive services. At the same time, the data suggest that smartphones, as well as various video players and videoconferencing equipment, may represent options for accessing these workforce development services. These platforms were reported by approximately half the LWIA respondents (50, 53, and 43 percent, respectively). Less common was the use of traditional broadcast media (radio and television) or audio players for communicating information related to core and intensive services.

The Lower Rio Grande Valley WIB (TX) has integrated iPad tablets into its core and intensive services. The Director of Performance and Innovation has designed intuitive apps to match job seekers to jobs listed on the state workforce commission's website (WorkInTexas.com), on the basis of their skills and interests and apps that capitalize on user's location information to display nearby job openings. iPads were used to engage participants who have low technological literacy with electronic content and to efficiently use staff time and resources. That is, the user-friendly, intuitive interfaces of the iPads, combined with participants' familiarity with touch-screen tablet computing (e.g., from using their personal smart phones), provides participants a way to access content with minimal staff guidance. Finally, via the FaceTime app, the local delivery system uses iPads as a low-cost alternative to traditional videoconferencing.

Exhibit 5.4: Media used to access core or intensive services

Media	Percentage of LWIA respondents	Percentage of LWIAs with ≥90% TBL participation	Percentage of LWIAs with <5% TBL participation
Computer (laptop or desktop)	97	100	90*
Telephone (audio only)	74	70	63
Video player (e.g., VCR, DVD player)	53	62	35*
Smartphone (e.g., Android phone, iPhone) or Tablet computer (e.g., iPad, Amazon Kindle Fire)	50	62*	31*
Videoconference equipment	43	53*	16*
Television	34	38	28
Audio player (e.g., CD player, iPod)	22	30	16
Radio ^h	12	14	6

Notes: * indicates that the difference between subgroup and remainder of sample is statistically significant at the 10 percent level.

All LWIAs, n=389-417

≥ 90 % TBL participation, n=42-47

< 5% TBL participation, n=48-52

Additional detail provided in Exhibit A.5.4 in Appendix A

Source: TBL local survey

LWIAs in the bottom quintile of TBL participation were less likely than their counterparts to report their AJCs enabled participants to use a wide variety of platforms to access core or intensive services. LWIAs in which fewer than 5 percent of AJC participants engaged in TBL lagged other LWIAs in the use of all platforms except for the most infrequent types: television, audio players, and radio (28, 16, and 6 percent, respectively across LWIAs). The exceptions may reflect the relatively smaller roles of these platforms more broadly.

5.2.3 Communication mode for core or intensive services

Finally, AJCs used a variety of technology-based communication modes to deliver core or intensive services (see Exhibit 5.5). The data indicate that more broadly well-established technologies were also prevalent in workforce development. For instance, LWIA respondents reported that phone calls and e-mails were used by virtually all AJCs (94 and 93 percent, respectively). In addition, a substantial majority of LWIA respondents reported their AJCs (72 percent) used some form of electronic documents (e.g., online resource materials, e-books) and nearly two-thirds (63 percent) reported their AJCs used social networking sites in order to support the communication for core and intensive services. It is particularly important to point out that the top quintile of TBL users did not exceed other LWIAs, suggesting that these were broadly pervasive trends.

Equally noteworthy is the use of a broad range of communication modes extending beyond the common options previously discussed. The use of webinars and videoconferencing, particularly by LWIAs in the top quintile of TBL participation (43 and 28 percent, respectively, overall, and 62 and 44 percent, respectively, in the top quintile) clearly demonstrated efforts to establish greater interactivity. Similarly, the use of text messaging and conference calls, cited by 4 out of 10 LWIA respondents, underscores the important role being played by mobile phones in the delivery of core and intensive services. Even some of the more cutting-edge technologies (e.g., simulations, virtual classrooms) were reported to be in use by 10 percent of LWIAs.

Exhibit 5.5: Communication modes used to provide core or intensive services

Communication Mode	Percentage of LWIA respondents	Percentage of LWIAs with ≥90% TBL participation	Percentage of LWIAs with <5% TBL participation
Phone call (person-to-person)	94	100*	83*
E-mail	93	96	81*
Electronic documents (e.g., CD-ROM, online documents, e-books)	72	83*	43*
Social networking sites	63	63	39*
Video files (e.g., non-interactive television broadcast DVD, YouTube, webcast)	55	74*	27*
Webinar (i.e., live online conference or seminar)	43	62*	12*
Conference call (voice only)	42	56*	12*
Text messaging (by phone)	39	41	16*
Videoconference	28	44*	4*
Online messaging (i.e., instant messaging or IM)	21	25	4*
Audio files (e.g., non-interactive radio broadcast compact disc, mp3 file, podcast)	20	29	12*
Online discussion board or message board	18	17	8*
Live online discussion (e.g., chat room)	14	20	2*
Digital or electronic games or simulations	13	15	6
Virtual classrooms (e.g., Second Life)	10	16	2*
Online collaborative workspaces (e.g., wikis, course blogs)	7	7	0*
Interactive television broadcast (e.g., call-in television program)	6	5	2
Interactive radio broadcast (e.g., call-in radio program)	5	9*	0*

Notes: * Indicates that the difference between subgroup and remainder of sample is statistically significant at the 10 percent level.

All LWIAs n=389-393

≥ 90 % TBL participation, n=43-47

< 5% TBL participation, n=49-52

Additional detail provided in Exhibit A.5.5 in Appendix A

Source: TBL local survey

A number of LWIBs cited the growing role social media play in their local delivery systems. **The Mohave-La Paz LWIB (AZ)** uses **Facebook** to **connect employers and participants**, to promote program activities for **hard-to-reach groups** (e.g., youth), and to inform participants of **employment opportunities**. This work is supported by a **social media helpdesk**, which answers general questions that users post on the site.

5.3 Summary

The data in this chapter show TBL—particularly technology-based services—was a strategy for delivering core and intensive services. All types of core and intensive services have the potential for being delivered, at least in part, electronically, as demonstrated by the fact that each of the services was delivered using technology-based services or technology-based skills building in at least some AJCs.

However, there were significant variations in which services were more or less likely to be delivered using TBL. AJCs were more likely to use TBL for core services that entail information sharing and assessment. Case management and counseling services were predominantly in-person. Across core and intensive services, technology-based services and technology-based skills building were being provided in a variety of ways: through asynchronous and synchronous approaches and using a variety of media and communication modes, including smartphones, as well as various video- and videoconferencing equipment.

6. Technology-Based Learning for WIA-Funded Training Services

Under WIA, AJC participants who are eligible for training services obtain them through a voucher-based system. Using ITAs, participants effectively purchase their training from a pre-approved set of eligible programs. Eligible training programs may include occupational skills training, on-the-job training, combinations of workplace training and related instruction, private sector training, skill upgrading and retraining, entrepreneurial training, job-readiness training, or other customized training. ETA has promoted TBL, particularly technology-based skills building to increase access to training for a larger number of participants, particularly those who cannot attend traditional classroom training courses.³⁸

This chapter examines the extent to which technology-based skills building was incorporated into the training services in which participants enroll. While an LWIA may have had an extensive array of approved programs from which to select (median 135 programs at 25 providers per LWIA), there were typically a smaller number of programs that had actually enrolled training participants with ITAs. To ensure consistency, survey respondents were asked to focus on the programs serving the highest volume of AJC participants. Specifically, LWIB Executive Directors were asked to provide information on the five training programs in their LWIA that served the highest number of participants using WIA funds, such as ITAs, during PY 2011.³⁹ Throughout this chapter, it is important to note that the unit of analysis is the *training program*, that is, the session, course, or course of study delivered by a given provider.⁴⁰

WIA-funded training-PY 2011 medians (self-reported)

- 339 participants in PY 2011
- 135 approved programs
- 25 approved providers

This chapter begins by examining the criteria LWIBs established for determining training program eligibility with respect to technology use. It then turns to documenting the use of technology-based skills building for training services and characterizing the types of programs that use technology-based skills building, focusing on the types of service providers, industry sectors, and credentials associated with those programs.

³⁸ U.S. DOL, 2008b

³⁹ Pre-testing suggested that LWIA respondents varied in their ability to provide information in delivery mode for all training programs within the LWIA because this information was not systematically recorded across LWIAs at the time of the survey. However, in 2012, ETA stated its intention to systematically collect, through the WIA Standardized Record Data (WIASRD) reporting system, data on whether training participants received training through distance learning (U.S. DOL, 2012b).

⁴⁰ Participants from multiple LWIAs may use their ITAs on a specific provider's program, so it is possible that their choices may be represented in the responses of more than one LWIA.

Additionally, high-volume training programs may be different than lower volume training programs in their use of TBL and their characteristics. For example, certain types of programs may have the ability to draw and serve a large number of participants.

As part of the U.S. Department of Labor, Employment and Training Administration's **Technology-Based Learning Grants, the Orange County, California Workforce Investment Board**, with Coastline Community College, created a **blended training program to improve communication skills of nurses for whom English was not the native language**. **In-person instruction** in English language fundamentals and pronunciation were supplemented with practice in an English-as-a-Second-Language Virtual Hospital. Learners created **avatars in Second Life** and practiced communicating with their instructor, other learners, other medical staff members, patients, and patients' families in simulated scenarios developed by subject matter expert in nursing (Dunham et al. 2011; U.S. DOL 2008a).

6.1 Local Criteria for TBL-based Training Programs

Prior to examining the extent and nature of technology-based skills building used for training, it is important to briefly examine the local context and factors that may potentially shape it. As noted earlier, WIA places no restrictions on the specific use of technology for training services (see Chapter 3). However, like state policymakers, LWIBs can establish criteria related to technology use in eligible training programs.

Survey respondents were asked whether their LWIB specified any additional restrictions or requirements related to the use of technology for training above and beyond federal and state guidelines. Overall, more than one in five respondents (21 percent) reported that their LWIB had established such criteria. These included:

- *Participants must have a cumulative GPA of 3.0 or higher, based on at least 24 credit hours and be in good standing with the college or university. Students already enrolled must be in the WIA program for at least one quarter or semester before being approved to take a distance learning course.*
- *Participants must justify the need for using a TBL-based training program as opposed to an in-person program.*
- *A TBL program must be affiliated with a traditional provider (e.g., an online course offered by a university in place of a classroom course).*
- *Online courses must be provided by an educational institution or have a process to provide documentation of attendance, participation, and completion.*

These types of criteria may establish standards for the use of technology for WIA-funded training services. While they may restrict initial access to training programs using technology, they may also promote technology-based skills building in certain situations (e.g., for more advanced participants, from certain types of providers). These standards may then contribute to the patterns described below for technology-based skills building use in the high-volume programs.

6.2 Prevalence of TBL in Training Programs

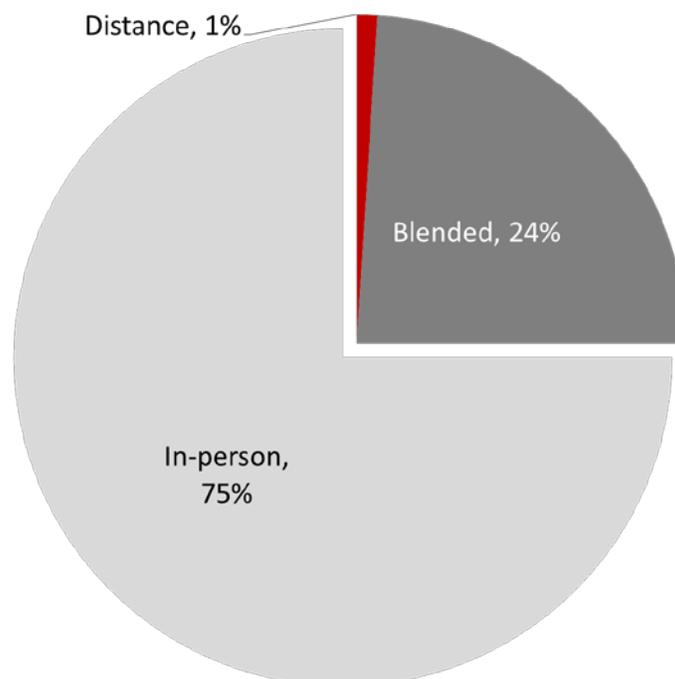
Survey respondents were asked to use the following definitions regarding how training was provided, with distance learning (in both distance and blended programs) serving as a proxy for the use of technology-based skills building.⁴¹

- *Distance programs* are those delivered online or by electronic linkages (e.g., videoconference) only;
- *Blended programs* are those that offered courses or sessions both by distance and in person; and
- *In-person programs* are those that relied on face-to-face instruction only (i.e., traditional, classroom-based programs); no course or session was held online or by distance.

To determine whether technology-based skills building was used in a particular training program, LWIA respondents were encouraged to consult local delivery staff, program data, and training program providers.

Exhibit 6.1 shows that technology-based skills building was used, to varying degrees, in the form of blended approaches to training. Among these programs, one-quarter delivered their services using technology with 24 percent using a blended delivery model and 1 percent implementing exclusively distance programs. Again, it is important to remember that the characteristics of the five highest volume training programs may not represent all eligible training programs.

Exhibit 6.1: Delivery mode of high-volume training programs



Notes: n=2,014

⁴¹ Pre-testing indicated that this was the highest level of detail about technology-based skills building that could reasonably be expected from survey respondents.

High-volume training programs represent the occupational training programs cited by respondents as serving the highest number of their AJCs' participants using ITAs. Respondents could provide information on up to five occupational training programs.

Additional detail provided in Exhibit A.6.1 in Appendix A

Source: TBL local survey

To better understand how and where technology-based skills building was being implemented, respondents described the provider type, industry sector, and the credentials offered by high-volume training programs.

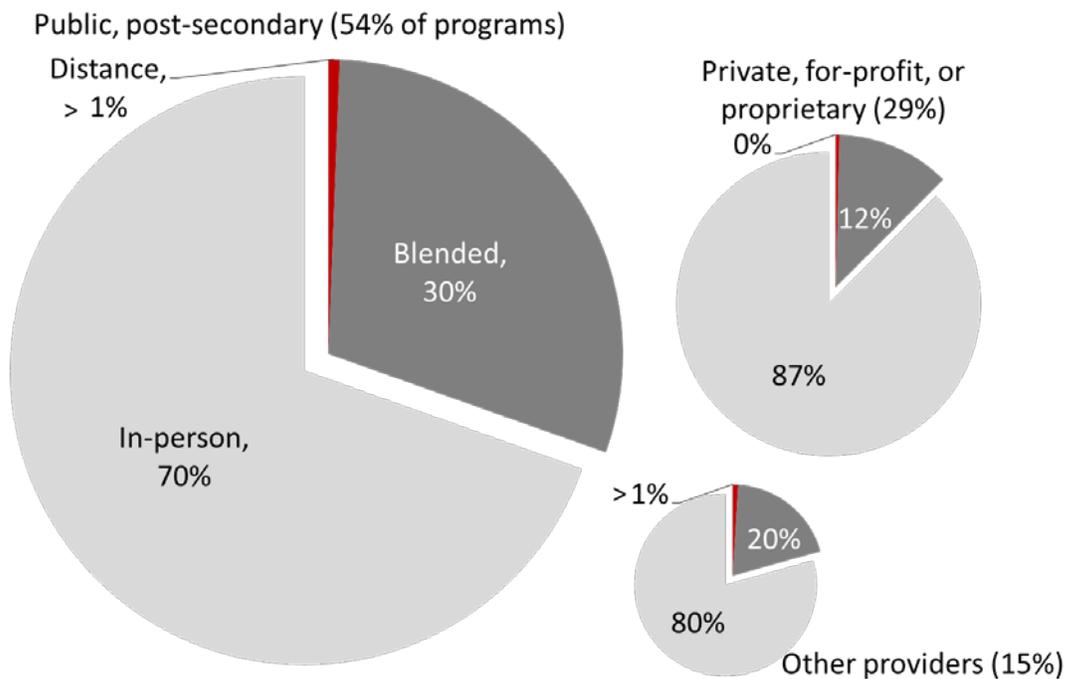
6.2.1 Prevalence of TBL in training for different provider types

WIA specifies a wide range of organizations eligible to receive WIA funds for providing training activities. These may include, among others, public and private universities and colleges; community colleges; state or local education agencies; registered apprenticeship programs; and proprietary institutions. Different types of organizations may have varying levels of capacity or motivation to provide training using technology-based skills building approaches. For instance, survey research conducted for the Sloan Consortium suggests that post-secondary institutions embraced the use of online education: in fall 2011, 32 percent of students in degree-granting, post-secondary institutions took at least one distance (online) course.⁴² That level of investment was largely mirrored in the data collected by the current study.

As shown on Exhibit 6.2, respondents reported that the largest proportion of the high-volume training programs (54 percent) was offered by public, post-secondary educational institutions. While it is likely that these providers were primarily community colleges, they may also include public universities and any other institution(s) eligible to receive funds under Title IV of the Higher Education Act. Among these programs, 30 percent reported using some technology-based component that blends distance or online instruction with in-person instruction. Another third (29 percent) of the high-volume programs were operated by private, for-profit, or proprietary schools.⁴³ Among programs at private, for-profit, or proprietary schools, 12 percent utilized technology-based skills building in a blended format.

⁴² Allen and Seaman, 2013.

⁴³ This group does *not* include private, nonprofit schools.

Exhibit 6.2: Delivery mode of high-volume training programs, by provider type

Notes: n=1,019

High-volume training programs represent the occupational training programs cited by respondents as serving the highest number of their AJCs' participants using ITAs. Respondents could provide information on up to five occupational training programs.

Size of each pie chart is approximately proportional to the percentage of programs for each provider type.

Additional detail provided in Exhibit A.6.2 in Appendix A

Source: TBL local survey

6.2.2 Prevalence of TBL in training for different industry sectors

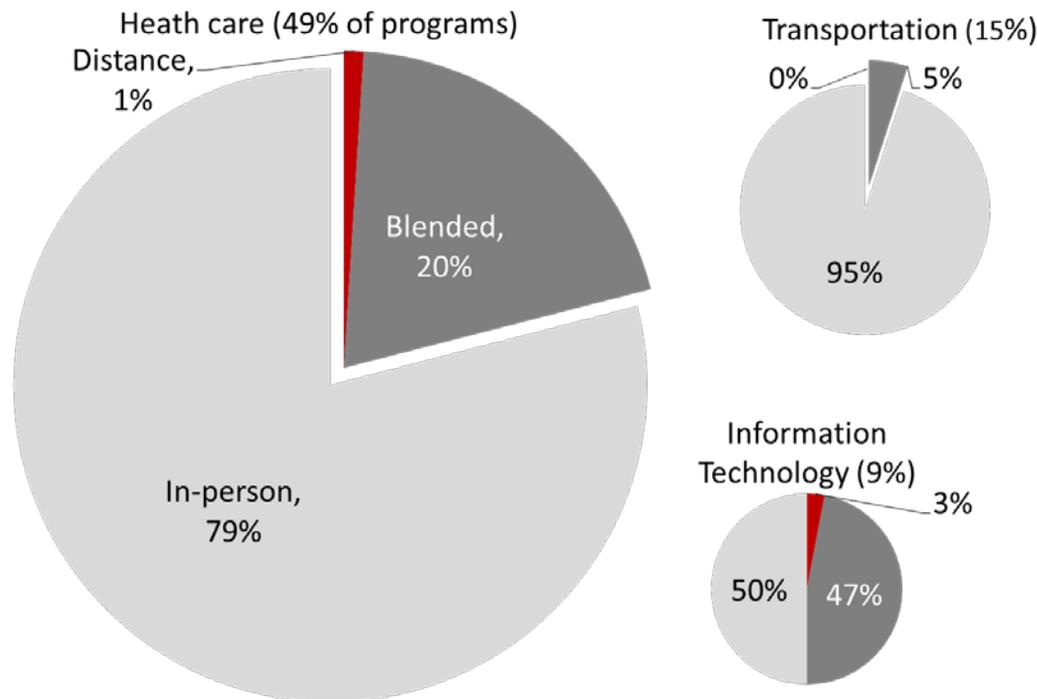
Through a range of initiatives, ETA has emphasized training and employment in a number of industry sectors as “high-growth, high-demand, and economically vital sectors of the American economy.”⁴⁴ It includes 14 sectors (e.g., biotechnology, energy, financial services) that were either projected to add substantial numbers of new jobs to the economy, projected to affect the growth of other industries, or were existing or emerging businesses being transformed by technology and innovation requiring new sets of skills for workers. Given the projected demand for workers in these sectors or the sectors' dependence on technology, it is useful to understand whether and how technology-based skills building was used to train workers within local workforce systems.

Many of the high-volume programs reported by respondents were concentrated in a small number of industry sectors. Moreover, while the proportion of exclusively distance learning programs was negligible across all industries, there were differences in the use of blended delivery by industry sector (Exhibit 6.3). For example, one in five health care programs (20 percent), which represent just under half

⁴⁴ E.g., U.S. DOL, 2009.

(49 percent) of high-volume programs, were delivered using blended approaches. Transportation programs (15 percent of high-volume programs) were less likely to use technology-based skills building: 5 percent of those programs utilize blended delivery. In contrast, programs in information technology (IT), which represent nearly one-tenth (9 percent) of high-volume programs, were more likely to use technology-based skills building. Of these IT programs, 47 percent were delivered as blended programs and another 3 percent used exclusively distance learning.

Exhibit 6.3: Delivery mode of high-volume training programs, by industry sector



Notes: n=1,865

High-volume training programs represent the occupational training programs cited by respondents as serving the highest number of their AJCs' participants using ITAs. Respondents could provide information on up to five occupational training programs.

Size of each pie chart is approximately proportional to the percentage of programs for each provider type.

Additional detail provided in Exhibit A.6.3 in Appendix A

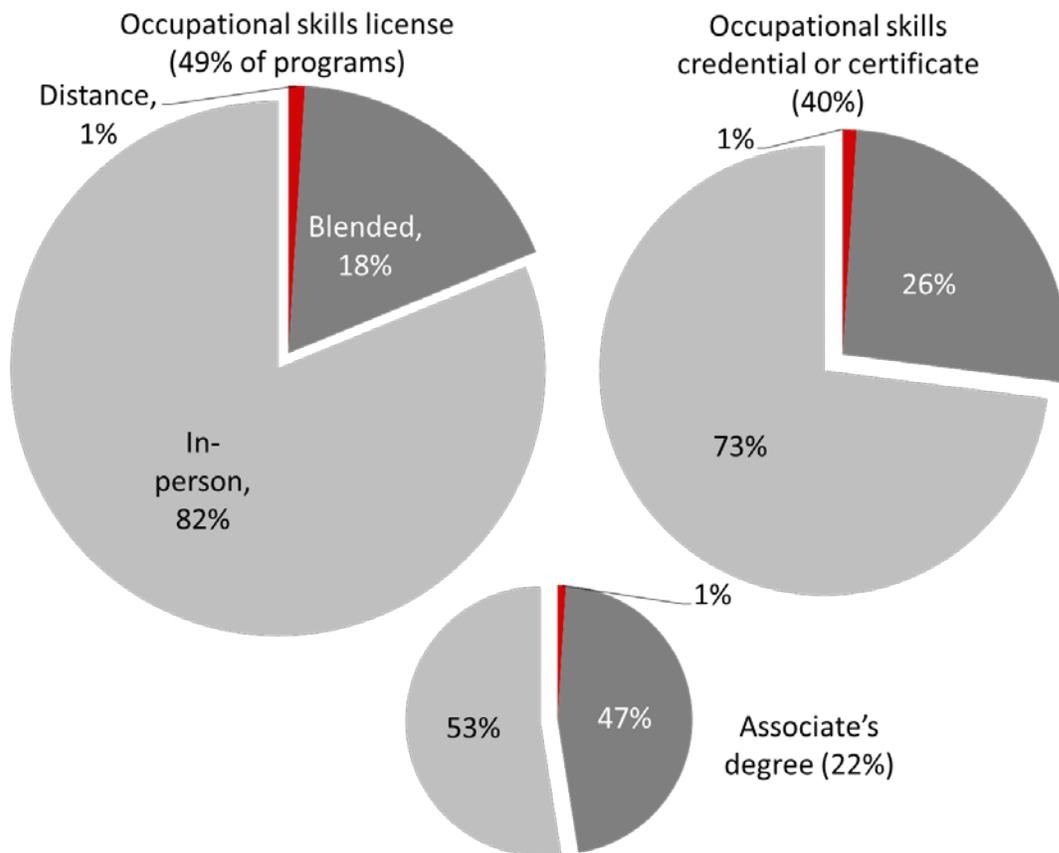
Source: TBL local survey

6.2.3 Prevalence of TBL in training for different credential types

Finally, it is important to know the types of credentials associated with technology-based skills building use in high-volume, WIA-funded training programs. This potentially provides additional insight into the types of programs that may be well suited to the adoption of technology-based skills building. Overall, the survey data indicated that most high-volume programs were likely to lead to a credential upon their successful completion (Exhibit 6.4). Nearly half of these programs (49 percent) were reported as likely to lead to occupational skills licenses (e.g., Licensed Nurse Practitioner, Commercial Driver's License) and another 40 percent reported to lead to an occupational skills certificate or credential (e.g., Microsoft Certified Systems Engineer, Occupational Safety and Health Administration Construction Safety Certification). Further, programs leading to an occupation-specific credential were reported to be less likely to incorporate technology-based skills building. Respondents reported that programs that

culminated in an Associate’s degree were significantly more likely to use technology-based skills building than were other programs. Of high-volume programs leading to an Associate’s degree, 47 percent used blended delivery. In contrast, 26 percent of those high-volume programs leading to an occupational skills credential or certificate and 18 percent of those leading to an occupational skills license used blended delivery.

Exhibit 6.4: Delivery mode of high-volume training programs, by credential received upon successful completion



Notes: n=1,936

High-volume training programs represent the occupational training programs cited by respondents as serving the highest number of their AJCs’ participants using ITAs. Respondents could provide information on up to five occupational training programs.

Size of each pie chart is approximately proportional to the percentage of programs for each provider type.

Additional detail provided in Exhibit A.6.4 in Appendix A

Source: TBL local survey

6.3 Summary

Drawing on the local-level perspective of LWIA respondents sheds light on the use of TBL in the training programs under WIA. Among the programs with the largest number of AJC participants in each LWIA, approximately one in four used technology-based skills building. Independent of provider, industry, and credential, the type of technology-based skills building overwhelmingly favored by the high-volume training programs was blended delivery, which combines distance and in-person learning.

However, there was considerable variation in the frequency of blended programs among the high-volume training programs. Programs within more traditional academic settings (i.e., those in post-secondary institutions and those leading to two-year degrees) were more likely to use blended learning approaches. Additionally, the data suggest that high growth industries more reliant on technology (e.g., information technology, health care) were also more likely to rely on technology-based skills building.

7. Technology-Based Learning for WIA Title II Services

As authorized in the WIA, Title II supports the provision of adult education services, family literacy services, and English literacy programs. Title II services are designed to ensure that participants have the educational foundation needed to pursue employment opportunities that can lead to economic self-sufficiency.

Title II is administered by OVAE at the U.S. Department of Education. It involves a state grants program in which the state agency with authority for WIA Title II (e.g., a state department of education) receives federal grant monies to fund local service providers to implement adult education services. Local Title II programs include local education agencies, community colleges, community-based organizations, libraries, volunteer literacy programs, and other non-profit organizations. AJCs can refer participants to adult education providers for instruction in Adult Basic Education (ABE), General Educational Development (GED) preparation, and English as a Second Language (ESL). This chapter examines the extent to which TBL, particularly technology-based skills building, was incorporated into the services delivered by the Title II-funded providers to whom AJCs referred participants.

LWIA respondents were asked to provide information on (up to) five Title II service providers to which their AJCs referred the most participants during PY 2011. Because the survey showed that AJCs made referrals to a median of only three Title II providers, the data are likely reflective of the universe of Title II providers that served LWIA respondents' AJCs and their participants. Throughout this chapter, it is important to note that the unit of analysis is the service provider or organization. A given provider may offer a range of Title II services, including ABE, GED test preparation, and ESL programs.

Ludlow Adult Learning Center (MA) incorporates **blended and electronic-only delivery** to instruct WIA, Title II **English as a Second Language (ESL) learners** and prepare them for transitions to college and careers. Technology literacy is embedded into English-language instruction, as learners are required to submit, provide feedback on, and revise assignments electronically. This both exposes learners to vocabulary and **computer-based reading and writing** and **teaches job or college-readiness skills**. In class instruction is further supplemented with computer-aided blended instruction. This course, held in a computer lab, allows learners to further their learning at their own pace with support from an in-person instructor. Learners may use *Burlington English*, which presents language then uses **speech-recognition software to analyze learners' oral language and provide instruction on correct pronunciation and comprehensibility**, and *U.S.A. Learns*, a **scaffolded, video-based course** offered free to learners by the U.S. Department of Education (Alamprese et al., forthcoming).

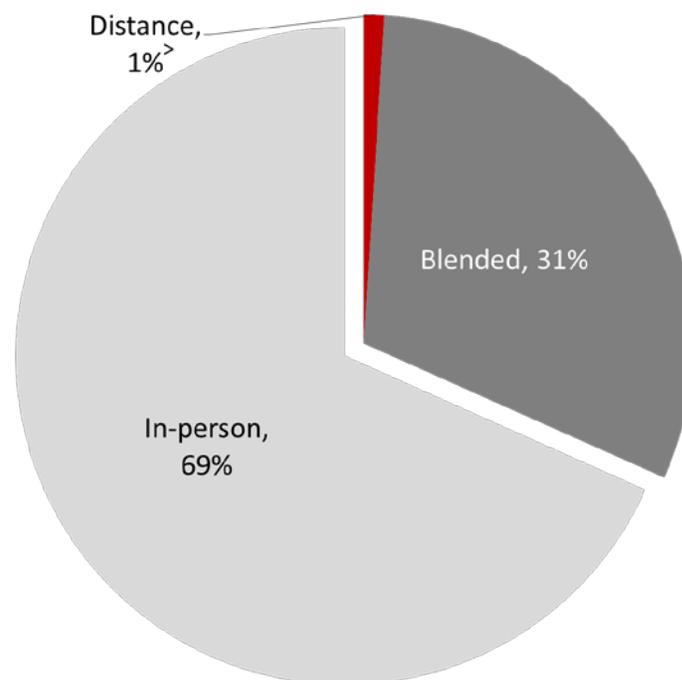
This chapter documents the prevalence of technology-based skills building among the high-volume Title II providers and emphasizes their organizational type and their service mix (i.e., the primary purpose of referrals). To determine whether technology-based skills building was used by particular Title II providers, LWIA respondents were encouraged to consult with local delivery staff, LWIB data, and Title II providers. The survey questions used the definitions of delivery mode described in Chapter 6, with

“distance learning” (either distance or blended services) serving as a proxy for the use of technology-based skills building.⁴⁵

7.1 Prevalence of TBL in High-Volume WIA Title II Programs

As was the case with training programs under WIA Title I, technology-based skills building approaches were used by a minority of the high-volume WIA Title II providers reported in the survey. These approaches were predominantly blended, and very few Title II providers offer exclusively distance learning services. Among the high-volume Title II providers, nearly one-third delivered their services using TBL. That is, 31 percent used a blended delivery model—combining both in-person and distance instruction—and another 1 percent were exclusively distance providers (Exhibit 7.1).

Exhibit 7.1: Delivery mode of high-volume Title II providers



Notes: n=1,079

High-volume Title II providers represent the Title II-funded providers cited by respondents as receiving referrals from their AJCs. Respondents could provide information on up to five Title II-funded providers.

Additional detail provided in Exhibit A.7.1 in Appendix A

Source: TBL local survey

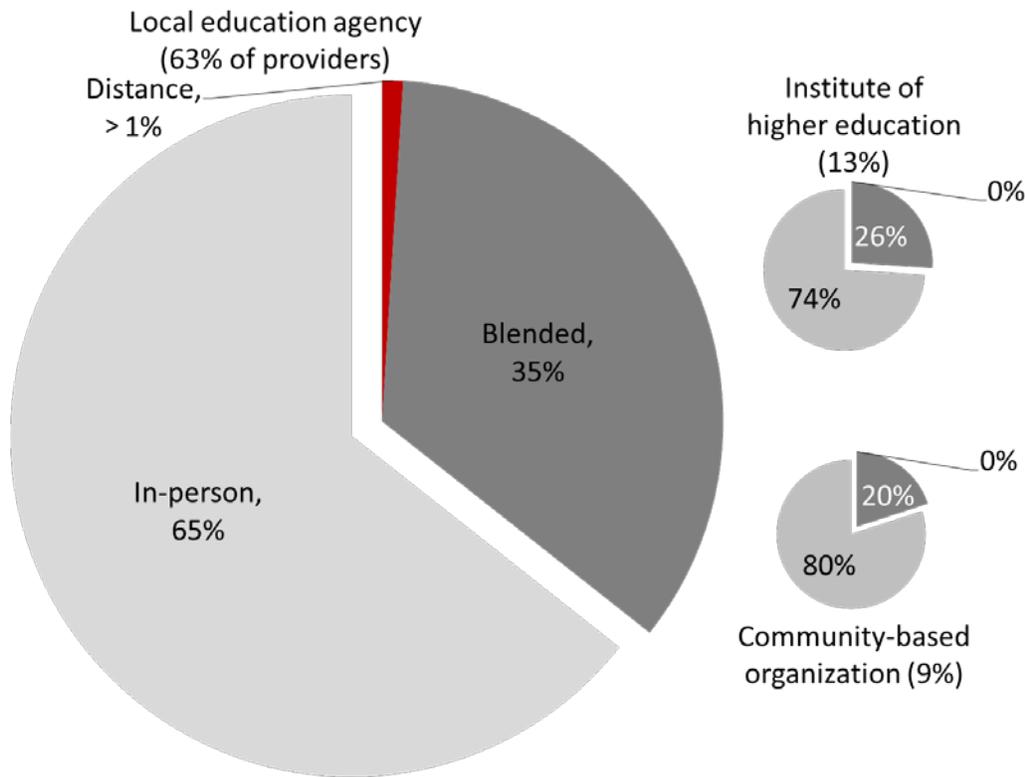
To better understand how the characteristics of the high-volume Title II providers relate to their use of technology-based skills building, LWIA respondents were asked to describe each of these programs in terms of provider type and primary purpose for the referral.

⁴⁵ Pilot testing indicated that this was the highest level of detail about technology-based skills building used by Title II providers that could reasonably be expected from survey respondents.

7.1.1 Prevalence of TBL for Title II services for different provider types

As with training providers (Chapter 6), different types of organizations may differ in their ability and interest in using technology-based skills building approaches. As shown in Exhibit 7.2, local education agencies (e.g., school districts) represent the most prominent type of provider among the high-volume Title II providers cited in the surveys. Among local education agency providers (63 percent of high-volume providers), 35 percent used blended approaches for Title II services with the remainder being offered exclusively in person. Other types of providers were less likely to use technology-based skills building in the provision of Title II services. For instance, 26 percent of institutions of higher education (13 percent of providers), such as community colleges, used technology-based skills building to deliver Title II services. As with training service providers under WIA, traditional educational institutions were most likely to have the infrastructure and knowledge to provide technology-based skills building opportunities for Title II learners.

Exhibit 7.2: Delivery mode of high-volume Title II providers, by provider type



Notes: n=1,068

High-volume Title II providers represent the Title II-funded providers cited by respondents as receiving referrals from their AJCs. Respondents could provide information on up to five Title II-funded providers.

Additional detail provided in Exhibit A.7.2 in Appendix A

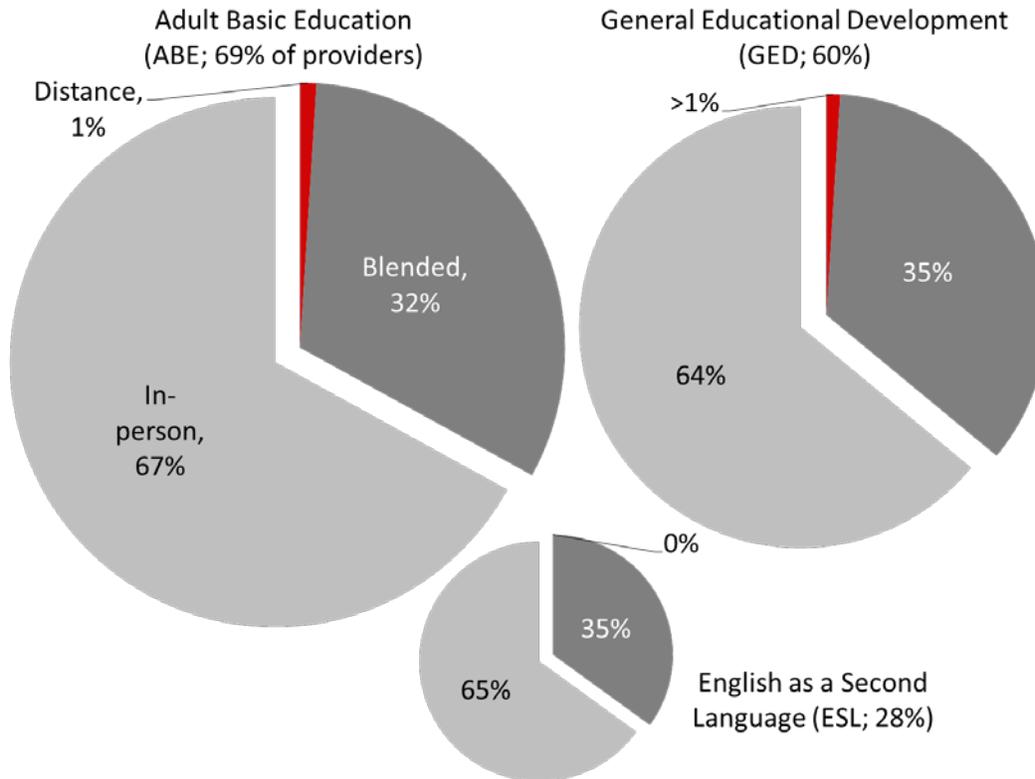
Source: TBL local survey

7.1.2 Prevalence of TBL for Title II services for different services

Respondents were asked to list the primary purpose of the referrals—ABE, GED, and/or ESL—for each high-volume Title II provider. The referral purpose is interpreted as a proxy for the content or types of adult education services offered by the providers. Referrals for a given provider may be made for a

number of purposes, so the services described here are not mutually exclusive. As shown in Exhibit 7.3, there was little variation in the use of technology-based skills building by provider across types of services. Among programs that received referrals for any of these services, approximately one-third utilized technology-based skills building, particularly blended approaches.

Exhibit 7.3: Delivery mode of high-volume WIA Title II providers, by purpose of referrals



Notes: n=1,246-1,251

High-volume Title II providers represent the Title II-funded providers cited by respondents as receiving referrals from their AJCs. Respondents could provide information on up to five Title II-funded providers.

Percentages across purpose do not sum to 100 since respondents could select multiple responses.

Additional detail provided in Exhibit A.7.3 in Appendix A

Source: TBL local survey

7.2 Summary

In sum, approximately one-third of Title II service providers reported by survey respondents incorporated technology-based skills building into their service provision. Largely, these providers were local education agencies, 35 percent of whom offer blended services. Among the types of Title II services provided (ABE, GED, or ESL courses), there was little variation in how much service providers utilize technology-based skills building.

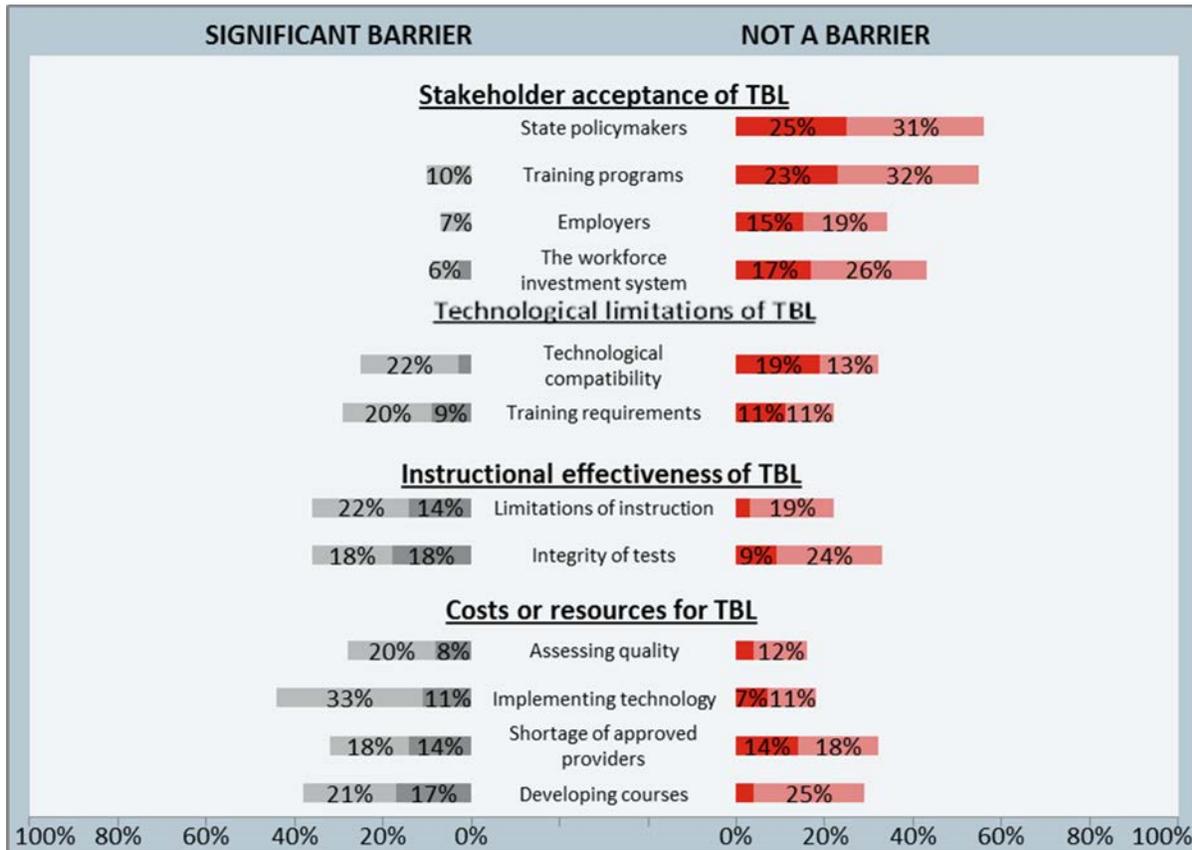
8. Factors Affecting Successful Implementation of Technology-Based Learning

The integration of TBL into the workforce system is an evolving process that is affected by various factors ranging from resource availability to customer needs. To help identify and prioritize these issues, both SWA and LWIA representatives were asked to rate the importance of a number of factors in terms of whether they pose potential barriers to the adoption and use of TBL.⁴⁶ The factors were drawn from the research literature on TBL and customized to each respondent population. Both surveys asked respondents to rate the importance of factors related to the perceived instructional effectiveness of TBL, resources or costs of using TBL, and stakeholder acceptance of TBL. Additionally, the LWIA respondents were asked to rate the importance of several additional issues that reflect the preferences and level of technological readiness of their AJCs' participant population. Finally, respondents were asked to further describe the major factors underlying their current level of TBL implementation.

8.1 Factors Affecting State-Level Implementation of TBL

Exhibit 8.1 summarizes SWAs' rating of potential barriers to the implementation of TBL. Responses from SWA respondents suggest acceptance, particularly among state policymakers, as well as training providers. Over half of SWA respondents (56 and 55 percent, respectively) said that these groups posed no or little barrier to implementing TBL. However, only one-third of respondents (34 percent) indicated that employers' acceptance of TBL posed little or no barrier. Few (no more than 10 percent) SWA respondents considered stakeholder acceptance at any level—state, training programs, employers, or the workforce system—to be a major barrier to implementation.

⁴⁶ All ratings were based on a five-point Likert scale ranging from “no barrier” to “significant barrier.”

Exhibit 8.1: Reported factors affecting state implementation of TBL

Notes: n=24-37

Responses with less than 5 percent are not labeled.

Darker shade corresponds to the strongest response (significant barrier/no barrier); lighter color corresponds to a more moderate response.

This graphic omits the middle category of moderate barrier.

Additional detail provided in Exhibit A.8.1 in Appendix A

Source: TBL state survey

Against this receptive backdrop, SWA respondents did express concerns regarding both costs and the instructional effectiveness of TBL. Their responses reflected concerns about actual expenditures on TBL and the organizational cost of transitioning to the use of TBL. Approximately 44 percent of SWA respondents reported that the cost or difficulty of implementing the necessary technology for TBL courses was a large or significant barrier. The cost or difficulty of developing TBL courses was also seen as a large or significant barrier by 38 percent of SWA respondents. These findings were reflected in respondents' qualitative answers. The most common factor cited by state respondents related to the required resources or costs of TBL. For instance:

- *Technology Coordinators are challenged by costs associated with supporting not only several platforms for customers, but by supporting multiple versions of the same platforms.*
- *Some local workforce investment areas have been reluctant to enroll participants in online training programs due to the higher cost often involved in these programs and challenges to monitoring participation in those offerings.*

One-third (36 percent) of SWA respondents noted that the perceived limitations of online instruction were large or significant barriers to broader use of TBL. A similar proportion felt that concerns about the integrity of tests or assessments were also a large or significant barrier. In the open ended follow-up question, respondents identified additional factors related to instructional effectiveness that might not have been addressed in their ratings. Specifically, the respondents pointed to participants' levels of technological literacy and access to the required technology (particularly Internet connections) as major factors limiting their states' current level of TBL. For example:

- *Some prevalent barriers include the participant's comfort with technology and the availability of computers for all participants.*
- *The use and expansion of TBL is directly impacted by the availability of broadband technology in various locations across the state, the digital divide and a level of digital illiteracy among a specific job seeking customer base, and the rapidly changing face of technology.*

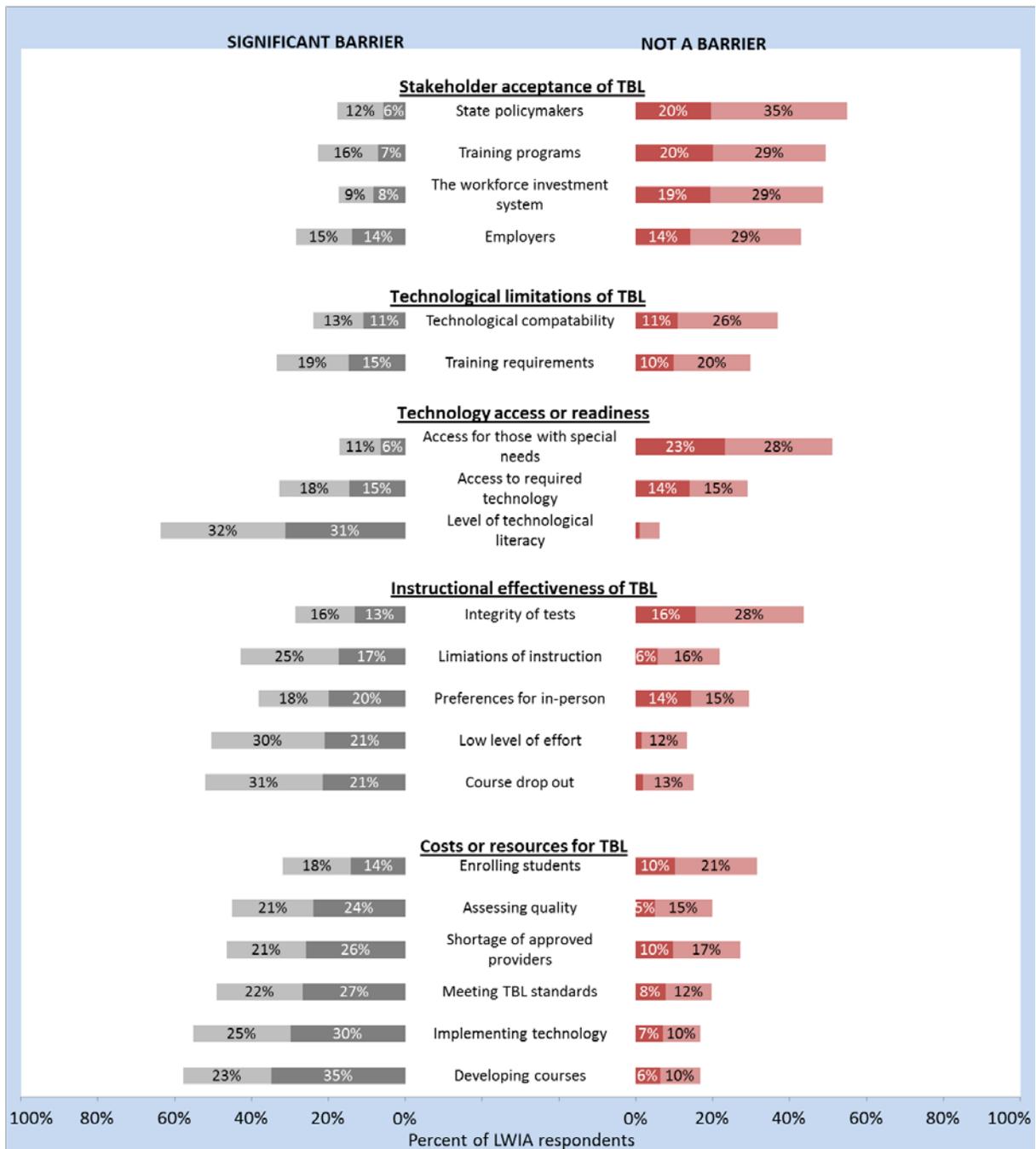
Finally, in their open-ended responses, a few SWA respondents also pointed to efforts to mitigate these challenges related to technological literacy. For example:

- *[While] the AJCs are all equipped with computer labs, not all participants are comfortable completing whole programs of study in public areas. Workforce staff members often offer participants computer literacy courses to increase individual proficiency prior to enrolling participants in full courses of study. This is beginning to alleviate the fear and worry about working in a public space.*

8.2 Factors Affecting Local-Level Implementation of TBL

LWIA respondents also were asked to rate a similar, but expanded, set of factors and perceived barriers to the local adoption and use of TBL. Consistent with the LWIA respondents' responsibilities, these factors focused on issues relevant to their AJCs' client base, including participants' access to equipment and their perceived technological readiness to pursue TBL. In addition, the survey also asked about issues addressed by LWIA respondents' state-level counterparts, including the perceived effectiveness of TBL instruction, the cost of implementation, and general stakeholder acceptance. At the local level, as at the state level, responses varied greatly both within and across the categories of responses.

Exhibit 8.2: Reported factors affecting local implementation of TBL



Notes: n=218-385

Responses with less than 5 percent are not labeled.

Darker shade corresponds to the strongest response (significant barrier/no barrier); lighter color corresponds to a more moderate response.

This graphic omits the middle category of moderate barrier.

Additional detail provided in Exhibit A.8.2 in Appendix A

Source: TBL local survey

LWIA respondents' perceptions generally aligned with those of the SWA respondents. LWIA respondents reported that the workforce system operated in an environment that was receptive to TBL adoption and use (Exhibit 8.2). Acceptance among key stakeholders was consistently rated as being little or no barrier to TBL implementation. For example, fewer than one in four LWIA respondents considered acceptance by state policymakers, degree or credential-granting programs, or the workforce system to be a large or significant barrier to TBL implementation (18, 24, and 16 percent, respectively). Like their state counterparts, LWIA respondents expressed some uncertainty over employer acceptance; however, this was not at a level that suggests it was a great impediment to moving forward (29 percent considered this a large or significant barrier). In their open-ended responses LWIA respondents pointed to the importance of stakeholder acceptance as a facilitator of TBL. For example:

- *In order for TBL to be successful in the LWIA, both job-seekers and employers need buy-in to TBL.*
- *[Our state's TBL is] initiated and supported by resources developed with WIA [such as the] 10 percent set-aside funds and national discretionary grants; resources residing on [our state] knowledge management portal and ETPL web site; and initiatives undertaken at the LWIB level.*

Among LWIA respondents, three broad factors were reported as barriers that warrant further exploration and attention. One concern was the technological readiness of participants. Specifically, nearly two-thirds (63 percent) of respondents cited participants' level of technological literacy as a large or significant barrier to TBL implementation. This perception was echoed in LWIA respondents' responses to the open-ended question. For instance:

- *The major factor our AJCs face when increasing the usage of TBL is the overall lack of computing skills by a large percentage of our clients.*
- *Much of our job seeker population does not have the technology skills required to fully participate in TBL.*
- *The AJC conducts weekly basic computer skills training to address the needs of youth and adult jobseekers. While both groups may text or have Facebook accounts, they do not have the necessary skills to conduct an online job search, receive electronic notices of job openings, or complete resumes.*

This is a particularly noteworthy issue that was also raised by state administrators. Clearly, this issue was of sufficiently widespread concern to have generated awareness outside of practitioner and operational circles. A second, and perhaps related, concern had to do with perceptions regarding the effectiveness of instruction in a technology-based setting. As shown in Exhibit 8.2, 42 percent of respondents viewed the limitations of TBL instruction to be a large or significant barrier. This sentiment was underscored by the related perception that technology-based instruction may be less capable of fully engaging learners, resulting in lower levels of effort (e.g., social loafing; 51 percent of LWIA respondents) or course dropout (52 percent of LWIA respondents).

The roles of these perceived barriers are further complicated by perceptions about the participants' skills or abilities and their preferences for in-person instruction. This was reported to be a large or significant barrier by nearly half of the LWIA respondents (48 percent). It is important to note that these concerns were not necessarily seen as inherent limitations of TBL, but rather challenges related to effectively

serving their target populations. In describing these concerns about instructional effectiveness, respondents noted:

- *Many students need the extra face-to-face instruction to succeed.*
- *We are serving people with significant barriers and the perceived time management skills to be disciplined and successfully complete are not adequate... The web opens a wide variety of possibilities and dangers. Our area needs to explore more but are a conservative group and shy of the dangers.*
- *We are starting to use more technology as part of our service delivery (computer lab instruction, social media, etc.). We have been leery of computer-based instruction—we have used it in the past, and it has been difficult to keep students motivated and engaged.*
- *The participants in our system seem to still have a higher preference for in-person communication or training. There can sometimes be challenges in participants successfully completing TBL coursework, as there are diverse levels of comfort in utilizing TBL technology and courses.*

Finally, some of the highest percentages of LWIAs respondents reported significant barriers related to the required resources or costs of TBL. In particular, approximately half of the LWIA respondents (between 45 and 55 percent) cited the costs of developing TBL courses, implementing the necessary technology for TBL courses, meeting TBL standards, and assessing the quality of TBL courses to be large or significant barriers. This pattern was repeated in the qualitative data. The plurality of respondents cited the required resources or costs of TBL, and the most common single answer to the open-ended question was simply “cost.” Other respondents elaborated:

- *It is costly to buy and requires frequent updating and maintenance.*
- *The major underlying factor is cost. Partners are not willing or able to share in the cost of providing the infrastructure for significant TBL within the comprehensive and satellite [American Job Centers].*
- *TBL is not cost-effective at this time. With the current WIA budget cuts, it is impossible to purchase the technology and to develop curriculum for TBL.*
- *[The] additional costs associated with TBL due to the need for program-related equipment and software required to participate in TBL [are a major barrier].*

These responses from LWIA respondents aligned with similar responses from SWA respondents. Together, these data suggests that, despite the long-term potential of TBL for promoting efficiency, the developmental and transitional investments needed to incorporate TBL into workforce development were a challenge.

Despite the myriad challenges that local delivery systems faced in implementing TBL, several LWIA respondents pointed to proactive efforts—often bolstered by extant resources, external funds or partnerships—to incorporate TBL within their LWIAs. For example:

- *[One LWIB] led the [nearby] area in “sharing” [resources] with the contiguous workforce boards. Many services were purchased with unlimited users in order to scale the license to ‘pay for itself.’*
- *[Major factors underlying our current use of TBL are] collaborative partnerships among state and local agencies to leverage resources.*

- *Costs and staff time to convert workshop material is an item that we are addressing locally and are looking for no or low cost programs...as well as looking at community partnerships to leverage resources for our mutual customers.*

Many LWIA respondents were optimistic about the role of TBL within local workforce development. As one respondent reflected:

The desire to move forward with more TBL is there. However, finding out what's out there and determining what is more effective becomes a challenge. A better awareness of new products and methods will increase everyone's interest for more TBL. We are looking for innovative ways to build more TBL into our programming and enhance our service delivery.

8.3 Summary

Stakeholders at both the state and local levels generally agreed on the major factors and challenges underlying the successful use of TBL within the workforce system. Both sets of survey respondents indicated that the major issues were more operational than attitudinal. Stakeholder acceptance—including that by policymakers, program providers, and employers—was seen as little or no barrier to TBL implementation.

Against this broad backdrop of acceptance, respondents identified a number of challenges to be addressed. The first and most noteworthy perceived barriers were cost related. While TBL may have the potential to promote cost efficiency over time, there were infrastructure, development, and transitional costs that need to be addressed before these efficiencies will be realized. The second key barrier cited by both state and local respondents was the technological readiness of participants. Despite proactive investments in assessments, orientations, and technical assistance, technological readiness of participants was a concern and potential barrier to further adoption of TBL. The third perceived barrier to TBL adoption and use was the quality and effectiveness of instruction and the related challenge of maintaining the necessary level of student engagement. This was raised as a particular concern in effectively serving target populations with educational or skills deficits.

9. Implications

The Department is committed to promoting the use of TBL by sponsoring TBL-related projects and research, communicating TBL's potential, and sharing effective practices. This study, part of ETA's TBL Initiative, provides a snapshot of state and local workforce system stakeholders' perceptions about the use of TBL and current activities within the workforce system. When appropriate, the analyses in this report distinguished between technology-based service and technology-based skills building. The responses from both state and LWIA representatives suggest that a number of conditions exist which may support the continued integration of TBL into the workforce system.

State-level policymakers, as represented through the responses of SWA administrators, were aware of TBL and its potential to expand the reach, flexibility, and efficiency of workforce services. Nearly half of the states responding to the survey (44 percent) had made institutional commitments to TBL in the form of policies, legislation, and/or investments that promote TBL. Seventy three percent of state respondents acknowledged the complementary roles that TBL plays in supporting other strategic objectives for the workforce system. Additionally, TBL had achieved a level of acceptance among key stakeholders, including the network of state policymakers, training providers and, to a slightly lesser extent, businesses.

While the pace of adoption varied considerably, LWIBs also made commitments and investments. This was occurring both within the AJCs and through their training and education providers. The AJCs have direct control over the technology component of core and intensive services. Three-quarters of the LWIA respondents reported that their AJCs offered blended services that combine both electronic and in-person support, primarily for technology-based services (71 percent). Further, one in five (19 percent) of the respondents reported that their LWIBs contracted with a virtual AJC as an online option for accessing services. In comparison, training providers eligible for WIA funding appeared to be moving at a more deliberate pace in integrating technology-based skills building into their occupational training programs. Approximately one-quarter (24 percent) of high-volume occupational training programs offered some form of blended training. This use of technology-based skills building varied somewhat by type of provider and the nature of the occupational training. A similar pattern was found in the provision of adult education services through Title II, where approximately one-third (31 percent) of high-volume Title II providers offered some form of blended adult education services.

Exhibit 9.1: Factors related to current and future TBL in the workforce system

Facilitators of TBL adoption and use	Areas for additional work
Development of infrastructure through leveraging existing resources	Continued identification of cost-sharing opportunities
Integration of personal support	Improved individual engagement and retention
Use of a digital "on-ramp"	Improved understanding of technological literacy
Active promotion and marketing of TBL	Improved insight into the dynamics of TBL promotion
Commitment to technical assistance	Improved understanding of what makes for effective technical assistance

This research helped to identify several issues that should be further explored as ETA refines the focus of its TBL Initiative going forward. Overall, the research points to several inter-related factors related to current and future adoption and use of TBL in the workforce system. These factors are summarized in Exhibit 9.1 and discussed in detail below.

9.1 Facilitators to TBL Adoption and Use

This research provides insight into several design factors that appear to be instrumental in promoting the adoption and use of TBL. The following themes emerged across the survey responses and the qualitative data:

- **Development of infrastructure through new investments and leveraging existing resources.** Survey data indicated concerns about the costs of implementing effective TBL. For example, the necessary infrastructure for TBL (e.g., up-to-date computers, Internet connections) was not universally available. The states and LWIBs that made commitments to TBL appeared to recognize that infrastructure investments are necessary in order to accommodate those on the other side of the “digital divide.” These populations may include both those in rural or outlying areas as well as those facing other barriers to accessing technology. Many AJCs invested in computer equipment and Internet access for participants. These resources can be deployed flexibly to support participants’ engagement with other technology-based activities, including TBL. Respondents also reported concerns related to assessing the effectiveness of TBL training programs. AJCs’ relationships with eligible training providers can help to reduce the cost of assessing course quality when these approved providers begin to offer technology-based skills building courses.
- **Integration of personal support.** In many instances, the transition to technology-based services and technology-based skills building appears to be aided by a simultaneous commitment to personal (i.e., real-time) support. In considering the use of TBL at the local level, it is important to make the distinction between provision and engagement. Survey responses suggest that a number of stakeholders were concerned with issues of participant engagement. That is, many perceive that workforce participants lack the focus, motivation, knowledge, and/or skills base needed to successfully pursue TBL without an appropriate level of personal support. This support can come through many design components including blended instruction, proactive case management, or resources for tutoring or mentoring.
- **Use of a digital “on-ramp”.** Adoption of a more TBL-based service strategy must be seen as a deliberately paced effort that is attentive to participants’ levels of technological literacy. Gaining the necessary level of functionality and comfort may be best achieved through some type of flexible “on-ramp” that ensures that participants have the tools and confidence needed to succeed in a technologically-based environment. Key resources that can be flexibly applied include, for instance, some combination of assessments, orientations, technology skills building, or technical support and assistance.
- **Active promotion and marketing of TBL.** While reliance on technology has become the norm in countless dimensions of daily life, such integration nonetheless represents an ongoing and protracted sea change in the world of training and education. The results from this research help to highlight the challenge of bridging the gap between the availability of TBL and the use of TBL. LWIA respondents appear to recognize this challenge and have been proactive about

efforts to expand awareness, consideration, and use. This includes efforts to promote awareness and interest among users as well as setting realistic expectations of providers (i.e., expectations of skills attainment regardless of training mode).

- **Commitment to technical assistance.** Approximately two-thirds of the LWIAs reported that providing some form of technical assistance to support users of TBL. This strategy is likely intended to encompass two intertwined objectives: 1) to provide the support needed for AJC participants to reap maximum benefit from WIA services and 2) to create and communicate a supportive learning environment that will attract and retain participants in the future.

9.2 Areas for Additional Work

While the data illuminated facilitators of TBL, at the same time the responses from SWAs and LWIA respondents shed light on several related areas for additional work moving forward. Areas that will provide guidance to those looking to refine ETA's TBL Initiative going forward include:

- **Continued identification of cost-sharing opportunities.** Despite the potential of TBL to promote cost efficiency and increase access to services, state and LWIA respondents confirm that cost-related factors are seen as barriers to increased investments in TBL. These concerns clearly reflect the budget-constrained environment in which they operate and the primarily low-income populations served by the workforce system. It is important that the TBL Initiative play a lead role in exploring institutional options to share developmental costs and defray operating costs. This includes the expansion of efforts to, for instance, underwrite developmental costs that benefit the system; share content across states, LWIAs, and providers; share technological platforms; and harness large-scale purchasing power. ETA continues to make these types of investments through, for example, the TAACCCT grants, which encourage grantees, in collaboration with community colleges, "to develop online training programs that build on current advances in science and technology and are scalable to large numbers of [Trade Adjustment Assistance] eligible workers and other adults."⁴⁷
- **Improved individual engagement and retention.** A major challenge facing successful TBL use is to fully engage AJC participants. LWIA respondents did not appear to have full confidence in the quality of TBL-based instruction. They expressed this sentiment by acknowledging concerns that TBL may result in problematic levels of social loafing or dropout. It is important to examine this issue further to determine whether the bigger challenge is the quality of synchronous technology-based instruction (e.g., webinars, virtual classrooms) or the inherent capacity of asynchronous modes (e.g., full self-study courses, podcasts) to fully engage students at a meaningful level. In any event, addressing this challenge requires working with training and education providers to further convey expectations or standards around TBL, such as those related to course design and pilot testing; training or certification specific to using technology for services or skills building; and the availability of student support options (e.g., learning communities).
- **Improved understanding of technological literacy.** Both state and LWIA respondents expressed similar sentiments that suggest that participants' levels of technological literacy (also

⁴⁷ U.S. DOL, 2013a, p 6.

referred to as “digital literacy”) is a barrier to more robust adoption of TBL. Given this pervasive sentiment, it is important to gain additional insight into exactly what constitutes an appropriate level of technological literacy and where the current skills gaps are. Further, it is important to examine this issue in the context of current and emerging technologies, as well as any implications for making use of technology-based services or technology-based skills building activities. Finally, the use of technology for workforce development—whether increasing access or building knowledge through technology based-services or through technology-based skills building—may affect participants’ levels of technological literacy and prepare them for additional engagement in TBL. Future work may explore strategies for increasing technological literacy, including through the use of TBL itself.

- **Improved insight into the dynamics of TBL promotion.** While promotional efforts are well underway, much remains to be understood about the dynamics of this process. For instance, what it takes to establish an enticing and technology-friendly service-delivery environment, how to use existing technology to promote newer technology, and how to best break down lingering concerns among employers about the quality of credentials earned or skills gained through TBL. It is important that these issues be explored in the context of DOL’s well-established electronic network (e.g., Workforce3One, communities of practice associated with particular grants) and its social media footprint.
- **Improved understanding of what makes for effective technical assistance.** Despite the prominence of the commitment to technical assistance, it is not clear how LWIAs view and prioritize these objectives. In addition, it would be valuable to further examine which technical assistance strategies appear to be most effective in promoting these aims. An inquiry into the focus and effectiveness of technical assistance efforts can also shed light on potential strategies for bridging the technology literacy gap discussed above.

Finally, the workforce system has a long established history of providing individualized and hands-on support to those looking to enhance their employability and career opportunities. The overriding emphasis on blended options underscores the importance of implementing TBL at a pace and in such a way that maintains the essential character of the workforce system. In this context it is important that ETA’s TBL Initiative remains aware of and sensitive to establishing realistic and balanced expectations around the pace of TBL adoption. Integral to this is ETA’s challenge to develop an appropriately balanced message to policymakers, planners, practitioners, and providers. While this research suggests that state and local stakeholders embraced the value and potential of TBL, it is also essential that ETA establish a message that avoids any implication that more is better or sooner is better. Rather, ETA can continue to offer both the insight and support needed for state decision-makers and LWIBs to make informed decisions about where and when to invest in TBL.

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