

Career Foundations

A New Approach to the Middle-Skills Gap

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Table of Contents

- I. Introduction
 - II. The Existing U.S. Workforce Skills-Gap
 - III. Moving Forward: Solving the Basic Skills Gap
 - IV. Basic Skills - What Skills are Needed?
 - V. Review of Three Adult Education Models
 - VI. Additional Challenges for Low-Skill Adult Learners
 - VII. A Revised Approach: A Career Foundations Model
 - VIII. Conclusion
- Appendices

I. Introduction

Overview

This white paper provides an overview of research related to the middle-skills gap facing the U.S. workforce, existing educational models for addressing the middle-skills gap, challenges faced by existing workforce educational models, and an overview of a recommended Career Foundations model as an alternative response to market needs and the limitations of existing models.

II. The Existing U.S. Workforce Skills-Gap

Summary

There is growing demand in the U.S. for workers to fill middle-skills jobs and a sizable population segment in the U.S. that lacks the skills and knowledge foundations to qualify for those jobs.

Details

By the early 2000s, leaders from education, business, and government sectors began recognizing a gap between the skills required for the jobs of the 21st century and the available skills of the U.S. adult population. Of particular concern has been the ability to source middle-skills jobs, or those jobs which require “significant education and training beyond high school but less than a bachelor’s degree.”¹

Analyzing data from the Bureau of Labor Statistics, the National Skills Coalition determined that 53% of the U.S. labor market in 2015 was comprised of these middle-skills jobs, but that only 43% of the country’s workers possessed the needed skills to fill them. The skills gap is set to widen as 63% of U.S. jobs in 2018 will require education between a high school diploma and bachelor’s degree, and these middle-skills jobs will comprise 48% percent of all job openings through 2024.²

Cognizant of this growing demand for middle-skills jobs, many have begun looking at population segments that can be targeted with education and skills training to fill these positions. One such segment consists of those who have not yet attained a high school

¹ [America’s Forgotten middle-skills Jobs](#)

²Carnevale, Anthony P., et al. Help Wanted: Projections of Jobs and Education Requirements Through 2018. Georgetown University Center on Education and the Workforce, June 2010, cew.georgetown.edu/cew-reports/help-wanted/.

diploma or its equivalent. While the overall high school dropout rate decreased from 10.9% in 2005 to 5.9% in 2015,³ there are over 25 million adults in the U.S. without high school diplomas or an equivalent credential.⁴

The acquisition of high school credentials alone, however, provides an incomplete estimate of the population segment in need of re-skilling to fulfill the need for middle-skills jobs. To estimate more completely the portion of the population that could be educated to meet the skills gap, we must also look at basic literacy and numeracy skill levels among adults in the U.S. Here, literary skills refer to a person's reading and writing proficiency while numeracy refers to a person's proficiency in working with and understanding numbers.

According to OECD's 2013 Survey of Adult skills, one in six adults in the United States have low literacy skills, while one in three adults have poor numeracy skills.⁵ Further analysis of these survey results shows that literacy skills, rather than educational attainment, is likely a better predictor of an individual's job qualifications. For 80% of those surveyed, literacy skills determined whether respondents were either "overqualified" or "underqualified" for their jobs.⁶

Extrapolating from this research, we can expand our definition of those needing additional education to obtain middle-skills jobs to also include all those individuals who lack the essential literacy and numeracy skills required to enroll in postsecondary education.

When we prioritize the criteria of basic literacy levels over that of educational attainment the number of adults in the U.S. that need education or re-skilling to get ahead in the job marketplace balloons significantly.⁷ This is exemplified by OECD's Survey of Adult skills from 2013, which determined that 36 million US adults have low skills, categorized by scoring below a level 2 on a 5 level scale (for a further breakdown of OECD's skill categories, see Appendix A).⁸

³ <https://nces.ed.gov/fastfacts/display.asp?id=16>

⁴ U.S. Census Bureau. Educational Attainment in the United States: 2017. 2017 Annual Social and Economic Supplement to the Current Population Study, 4 Dec. 2017, www.census.gov/data/tables/2017/demo/education-attainment/cps-detailed-tables.html.

⁵ OECD (2013), Time for the U.S. to Reskill?: What the Survey of Adult Skills Says, OECD Skills Studies, OECD Publishing. <http://dx.doi.org/10.1787/9789264204904-en>

⁶ Soares, Louis, and Laura W. Perna. Readiness for the Learning Economy: Insights from OECD's Survey of Adult Skills on Workforce Readiness and Preparation. American Council on Education Center for Policy Research and Strategy, Jan. 2014, www.acenet.edu/news-room/Pages/Readiness-for-the-Learning-Economy.aspx.

⁷ Here we speak of literacy skills alone, as the correlation between weak literacy skills and weak numeracy skills is demonstrably high.

⁸ OECD (2013), OECD Skills Outlook 2013: First Results from the Survey of Adult Skills, OECD Publishing. <http://dx.doi.org/10.1787/9789264204256-en>

This number exceeds the current number of adults without high school diplomas by ten million, indicating that educational attainment status alone is not a direct proxy for skill levels. However, due to the international nature of this survey, it is difficult to parse which category level adults need to attain to be prepared for some postsecondary education and middle-skills jobs. Though it contains older data, the 2003 National Assessment of Adult Literacy (NAAL) provides a clearer mapping of literacy skill levels to tiers of educational attainment. Combining those who fell into either Below Basic or Basic prose literacy levels,⁹ the 2003 NAAL estimated that 93 million adults aged 16 or older living in the United States lack literacy levels needed to enroll in postsecondary education.¹⁰

Ultimately, whether the number is 25 million, 36 million, or 93 million, these estimates show that there is a significant portion of the current U.S. population that requires further education and skill development in order to meet the ever growing demand for middle-skills jobs.

III. Moving Forward: Solving the Basic Skills Gap

Summary

Many see closing the basic skills gap as the best pathway to preparing adults for middle-skills jobs. Such training offers adults improved employment, further skill development, and opportunities for additional training.

Details

The skills gap among U.S. adults has prompted renewed interest in initiatives aimed at improving basic skills. While literacy and numeracy are at the forefront of “basic skills,” in its broader definition, this term refers to the minimum skills required to function effectively in American social and economic life, and can encompass a wide range of related items. Three key benefits, in particular, make providing adults with better basic skills an important goal in solving the skills gap.

First, adults with stronger basic skills are rewarded with improved employment opportunities and higher wages.¹¹ This correlation exists despite educational credentials attained. For example, research on individuals who have failed the GED

⁹ NAAL separates literacy into three categories: Prose, Document, Quantitative. For more information on how these are measured, see Appendix B

¹⁰ [National Assessment of Adult Literacy](#), (NAAL, 2003), U.S. Department of Education, 2005

¹¹ OECD (2013), Time for the U.S. to Reskill?: What the Survey of Adult Skills Says, OECD Skills Studies, OECD Publishing. <http://dx.doi.org/10.1787/9789264204904-en>

test suggests that those who fail with high scores consistently make higher wages than those who fail with lower scores.¹² In other words, despite a similar level of educational attainment (none), the skill differential of these adults sees those with higher skills rewarded.

A second benefit for adults with improved basic skills occurs after they secure employment. Their increased skill level allows them to continue building on their skill foundation through use at work and outside the workplace. These adults have the necessary skill level to develop even higher levels of skill proficiency develop through practice.¹³

This continued skill development through on-the-job practice often leads to a third benefit for adults with higher basic skills -- increased opportunities for education and training. In fact there is a correlation between an individual's level of basic skills proficiency their participation in job-related education and training.¹⁴

Combined, these three benefits show that improving basic skills in adults can be a watershed moment in their lives, giving them employment and education opportunities that consistently build and reinforce basic skills over time and lead to additional employment and education opportunities.

These benefits also offer, at least in theory, a rational method for addressing the U.S. skills gap. By providing programs that increase basic skill levels in adults we can start them on pathways that, over time, will help them reach the requisite skill and educational attainment levels for middle-skills jobs.

¹² Tyler (2001), What Do We Know about the Economic Benefits of the GED? A Synthesis of the Evidence from Recent Research: <http://sites.cde.state.co.us/sites/default/files/documents/cdeadult/download/pdf/whatdoweknow01.pdf>

¹³ OECD (2013), OECD Skills Outlook 2013: First Results from the Survey of Adult Skills, OECD Publishing. <http://dx.doi.org/10.1787/9789264204256-en>

¹⁴ OECD (2013), Time for the U.S. to Reskill?: What the Survey of Adult Skills Says, OECD Skills Studies, OECD Publishing. <http://dx.doi.org/10.1787/9789264204904-en>

IV. Basic Skills - What Skills are Needed?

Summary

Upskilling adults to take on middle-skills jobs must encompass both hard skills (literacy and numeracy) as well as soft skills (interpersonal, communication, management).

Details

As an initial step, it is important to establish the full range of skills an adult may require to function effectively in the American Economy and start on pathways to middle-skills jobs. Fortunately, baselines for establishing this range of skills have already been established by the Secretary's Commission on Achieving Necessary Skills (SCANS). This report was commissioned by the Secretary of Labor to determine the skills people need to succeed in high-performance workplaces. As part of this, SCANS established a three part foundation of fundamental skills and five overarching workplace competencies, as seen below.¹⁵

Three-Part Foundation

Basic Skills	Thinking Skills	Personal Qualities
A. Reading	A. Creative Thinking	A. Responsibility
B. Writing	B. Decision Making	B. Self-Esteem
C. Arithmetic/Mathematics	C. Problem Solving	C. Sociability
D. Listening	D. Seeing Things in the Mind's Eye	D. Self-Management
E. Speaking	E. Knowing How to Learn	E. Integrity/Honesty
	F. Reasoning	

Five Workplace Competencies

Resources	Interpersonal	Information	Systems	Technology
A. Time	A. Participates as Member of a Team	A. Acquires and Evaluates	A. Understands Systems	A. Selects Technology
B. Money	B. Teaches Others New Skills	B. Organizes and Maintains	B. Monitors and Corrects Performance	B. Applies Technology to Task

¹⁵ Information from the tables "Three-Part Foundation" and "Five Workplace Competencies" is derived from this report: What Work Requires of Schools: A SCANS Report for America 2000. (<https://wdr.doleta.gov/scans/whatwork/what-work.pdf>)

C. Material and Facilities	C. Serves Clients/ Customers	C. Interprets and Communicates	C. Improves or Designs	C. Maintains and Troubleshoots Equipment
D. Human Resources	D. Exercises Leadership	D. Uses Computers to Process		
	E. Negotiates			
	F. Works with Diversity			

The evidence for this range of skills can be found in employment trends across America as well as employee and employer opinions. Since 1980, jobs requiring soft skills such as interpersonal, communication or management skills have increased 83% in employment - from 49 million to 93 million. Additionally, half of employed adults say interpersonal skills are extremely important in their jobs.¹⁶ Soft skills are highly sought after by employers filling middle hiring for middle-skills positions, but is a requirement that makes filling these positions difficult. In a recent survey of HR professionals, respondents cited a “lack of foundational skills” as the second most important reason for jobs that are hard to fill, with one third noting many applicants lacked the work ethic of ambition to be successful in a role.¹⁷

In response to the shortage of soft skills among middle-skills applicant pools, companies are beginning to use advanced degrees as proxies for soft skills.¹⁸ While there is evidence that there is a correlation between soft skills and advanced educational attainment, this effectively limits the applicant pool - and takes certain jobs out of the middle-skills territory - for jobs that do not require the hard skills associated with a bachelor’s degree. Currently, among employed individuals with a bachelor’s degree, 65% of them say someone with less education could learn to do their job.¹⁹

This trend underscores the fact that upskilling adults to take on middle-skills jobs must encompass both hard skills (literacy and numeracy) as well as soft skills (interpersonal, communication, management) in order to qualify for and address employer needs for those positions.

¹⁶ Pew Research Center, October, 2016. “The State of American Jobs: How the shifting economic landscape is reshaping work and society and affecting the way people think about the skills and training they need to get ahead.” <http://www.pewsocialtrends.org/2016/10/06/the-state-of-american-jobs/>

¹⁷ O’Bridge the Gap: Rebuilding America’s Middle Skills <https://www.hbs.edu/competitiveness/research/Pages/research-details.aspx?rid=66>

¹⁸ Ibid. (Bridge the Gap: Rebuilding America’s Middle Skills)

¹⁹ Pew Research Center, October, 2016. “The State of American Jobs: How the shifting economic landscape is reshaping work and society and affecting the way people think about the skills and training they need to get ahead.” <http://www.pewsocialtrends.org/2016/10/06/the-state-of-american-jobs/>

V. Review of Three Adult Education Models

Summary

Many organizations and companies deliver Adult Continuing Education in the U.S. The three primary models for such education are (1) GED test and high school equivalency, (2) workforce readiness, and (3) bridge career pathways. While each of these models has achieved varying degrees of success regards to hard-skills development, there remain specific gaps in their effectiveness in preparing adults for middle-skills jobs.

Details

Many entities deliver various types of Adult Continuing Education in the United States. In fact, over 3 million adults were served in the 2011-2012 year by programs qualifying for federal funding.²⁰ While that may only be a fraction of the adult population that could use such programs, it demonstrates the potential range of programs and services across the country. However, many of these programs fall into several distinct model categories. Below we review three major models for delivering Adult Education to provide an overview of the market, and additionally evaluate each model's effectiveness for solving the skills gap.

GED: An Outdated Model

Summary

Model: GED Test and High School Equivalency

Offered By: American Council on Education (ACE) in partnership with Pearson

Cost: Varies by state. In Oklahoma the cost is \$136 (for all 4 subtests)

Pros: Inexpensive and requires no formal class work as part of test preparation

Cons: Lacks soft skill development; Sends negative signals to many employers; Does not create a solid pathway leading to better employment to increased education over time.

Description

In terms of basic skills education, the GED has been well-established as providing basic hard skill validation for adults without a high school diploma. To prepare for the GED test, many adults study on their own or participate in ASE programs in order to develop their basic hard skill levels necessary for passing the exam. Adults who pass

²⁰ Adult Education and Family Literacy Act of 1998: Annual Report to Congress Program Year 2011-12. <https://www2.ed.gov/about/offices/list/ovae/resource/octae-aefla-2011-2012-508.pdf>

the GED exam obtain a high school equivalency credential certifying that they possess the same hard skills as a standard high school graduate.

Many employers and educational institutions require a high school diploma or GED equivalent as a minimum for entry, which has led to the GED credential has being touted as a pathway towards better employment and education. However, the overall consensus is that GED recipients do not do as well in the job marketplace as those who earn standard high school diplomas, nor do they enter postsecondary education at similar rates.

There is clear evidence that GED credentials do not send wholly positive signals to employers. A GED credential necessarily indicates that an individual did not complete high school, leading some employers to characterize GED recipients as “smart but unreliable.”²¹ While the GED validates a holder’s hard skills, their status as “dropouts” says something to employers about a holder’s soft skills - an equally important component of a basic skill set. This is what economists refer to as a “mixed signal.”²² Employer perception that GED holders might be less skilled or less dependable than those with high school diplomas has translated to fewer opportunities for employment and increased wages for those holding this credential.

In addition, although the GED does offer recipients a pathway to postsecondary credentials, only a small percentage of GED holders obtain such credentials. While 60% of GED recipients cite “obtaining postsecondary education” as their reason for obtaining the credential, rather than obtaining better employment. However the numbers do not suggest that GED recipients are successful in their pursuits of postsecondary education. In a study of 2003 GED recipients, researchers found that, while 43% enrolled in postsecondary education within six years of obtaining their GED, only 12% earned a postsecondary degree or credential.²³

In summary, while the GED provides validation of basic hard skills, it does not provide the complete training adults need to pursue middle-skills employment. For many employers, the GED sends “mixed signals,” indicating that an individual is less prepared or, perhaps, unreliable. Finally, the GED does not offer a clear or solid pathway leading from better employment to increased education over time.

²¹ Tyler (2001), What Do We Know about the Economic Benefits of the GED? A Synthesis of the Evidence from Recent Research: <http://sites.cde.state.co.us/sites/default/files/documents/cdeadult/download/pdf/whatdoweknow01.pdf>

²² The GED is a “Mixed Signal”: The Effects of Cognitive and non-Cognitive Skills on Human Capital and Labor Market Outcomes (<https://ssc.wisc.edu/~sdurlauf/HHR.pdf>)

²³ Patterson, Margaret B., Jizhi Zhang, Wei Song, and Anne Guison-Dowdy. 2010. Crossing the Bridge: GED Credentials and Postsecondary Education Outcomes. Washington, DC: GED Testing Service <https://eric.ed.gov/?id=ED509888>

Workforce Readiness: An Unproven Model

Summary

Model: Workforce Readiness Certificate. National programs include Workforce Skills Certification System (WSCS) and National Career Readiness Certificate (NCRC)

Offered By: Regional and national providers. National program providers are CASAS (WSCS), and ACT (NCRC)

Cost: Program cost is generally paid by participating centers and subsidized by local, state, and federal programs. Participants must qualify for these programs.

Pros: Inexpensive for user. Programs are mapped to basic skills and participation often leads to employment.

Cons: Lacks soft skill development; Focus is on entry-level employment and participants struggle to move into middle-skills jobs; Do not guide participants toward or facilitate acquisition of postsecondary credentials.

Description

Beginning in the early 2000s, workforce readiness certificates emerged as a new approach to jump-start the careers of adults with low basic skills. These certificate-based programs integrate basic skills education with workforce training, which generally includes the basic hard skills needed to pass the GED exam with an additional focus on soft skills necessary to thrive in workplace settings.

By explicitly addressing hard and soft skills, workforce readiness certificates aim to proactively circumvent employer biases that adults with alternative credentials are “unreliable” as in the case of the GED. Additionally, many programs form partnerships with employers to ensure their certificates align with industry needs and that employers will prioritize certificate recipients for open positions.

Workforce readiness certificates and programs are focused on solving the immediate need of getting adults into the workforce, which is both the strength and weakness of this model. These programs often define participant success in terms of securing entry-level jobs. However, research reveals that this type of training “...may help individuals get into the labor market but it usually does not help them advance beyond low-paying jobs.”²⁴ Participants are ill-equipped to continue scaling their career from these low-paying jobs, nor is it likely that these low-paying jobs offer continual practice of the basic skills obtained through a workforce readiness program.

²⁴ Prince, David, and Davis Jenkins. Building Pathways to Success for Low-Skill Adult Students: Lessons for Community College Policy and Practice for a Longitudinal Student Tracking Study (The “Tipping Point” Research). Community College Research Center, Columbia University, Apr. 2005, <http://ccrc.tc.columbia.edu/publications/low-skill-adults-policy.html>. p. 21

The work first focus also undermines the ability of workforce readiness programs to guide participants towards the acquisition of postsecondary credentials. These programs address basic skills training with a workplace focus that is not necessarily geared toward postsecondary success. As a result, many adults with workforce readiness certificates will still require remedial courses should they pursue postsecondary education; ultimately decreasing their chances of obtaining a college credential.²⁵

In summary, while current workforce readiness certificates succeed at helping adults enter the job marketplace, they are not providing sufficient hard and soft skill training to (1) place adults in jobs that will help reinforce their basic skills over time or lead to successively better jobs (such as middle-skills jobs), or (2) promote success in the form of postsecondary education credentials. Like those that pursue GEDs, some adults with workforce readiness certificates may be able to build on their learning to reach middle-skills jobs, but the certificate programs themselves are not built for that outcome.

[Consult Appendix C for more detailed information about national workforce readiness programs.]

Bridge Career Pathways: The Tipping Point Model

Summary:

Model: Bridge Career Pathways or Occupational Certificates

Offered By: Community Colleges

Cost: Certificate program costs vary depending on length and learning materials. The estimated cost for a typical 18-hour certificate program is around \$5,000, while a 36-hour program might cost \$7,000.

Pros: Industry-specific training for established careers; Industry-recognized certificates; Promotes at least one year of postsecondary education with college credit.

Cons: Lacks soft skill development which is critical for promotion after employment; Narrow focus on certificate curriculum means less career flexibility.

Description

Community colleges have traditionally been a premiere destination for people seeking occupational certificates, however, by integrating basic skills education into occupational training, they have created career pathways that “bridge” the low skills gap without requiring remedial courses by low-skilled participants.

²⁵ Segueing Adults to Postsecondary Education Policies to Promote Adult Education and Postsecondary Alignment Julie Strawn, 2007 (on behalf of National Commission Adult Literacy). <https://files.eric.ed.gov/fulltext/ED506594.pdf>

The popularity of this model derives from longitudinal research that delineates a clear “tipping point” in education wherein adult learners begin seeing significant financial gains for their educational efforts by completing a minimum of one year’s worth of college and earning a credential in that time period.²⁶ Successfully completing a bridge career pathways program earns the adult learner an industry-recognized, college accredited technical or vocational certificate and while raising basic skills to a postsecondary level.

In many ways, this model solves weaknesses inherent to the GED and workforce readiness models. Adults entering into bridge career pathways are immediately able to earn college credit - a goal of most adult learners - without taking remedial courses. They also earn industry-recognized credentials, without any stigma attached, that enable them to transition to the workforce, often on a career path in a specific profession.

However, this model is also not without some weaknesses as a skills gap solution. While the occupational certificate certainly facilitates gaining entry-level career employment in specific industries, post-employment promotions are largely dependent on displays of soft skills. Unfortunately, bridge career pathways programs do not emphasize soft skill development and, as a result, do not ensure adults have the requisite skills to continue progressing a career ladder (should they so choose).²⁷

Another weakness related to bridge career pathways programs is their narrow, industry-specific focus, which often provides participants with a lack of career flexibility. Learning basic skills within an occupation-specific context does not guarantee an adult will be able to transfer those skills to a different context. Adults completing these programs may not be able to easily change jobs at a later date should the market or their own desires necessitate a change. A study of baby boomers demonstrated that they held an average of 11.9 jobs between the ages of 18-50.²⁸ While that number may or may not hold true today, it is demonstrative of a need to prepare adults to navigate different jobs.

Finally, occupational certificates offered through community colleges are much more expensive than GED testing or workforce readiness programs in terms of financial cost in dollars and cost in time. An online GED prep class may take anywhere from 8-16 weeks, while workforce readiness programs have a similar short turnaround. Financially, GED and workforce readiness may cost at most hundreds of dollars, while occupational

²⁶ Prince, David, and Davis Jenkins. Building Pathways to Success for Low-Skill Adult Students: Lessons for Community College Policy and Practice for a Longitudinal Student Tracking Study (The “Tipping Point” Research). Community College Research Center, Columbia University, Apr. 2005, <http://ccrc.tc.columbia.edu/publications/low-skill-adults-policy.html>.

²⁷ To mitigate the soft-skills problem some programs, like Ohio’s Stackable Certificates model, provide pathways where students can successfully obtain higher levels of occupational credentials over time. However, such models still do not guarantee that individuals have the soft skills to be successful at higher tiers of employment.

²⁸ Number of Jobs, Labor Market Experience, and Earnings Growth Among Adults at 50: Result from a Longitudinal Survey <https://www.bls.gov/news.release/pdf/nlsoy.pdf>

certificates cost thousands. This higher cost serves as a significant barrier to the unemployed, underemployed, and underskilled.

In spite of these weaknesses, bridge career pathways, more than the GED model or Workforce Readiness models, provide a more favorable solution to the skills-gap. Adults emerge from these programs with the basic skills and credentials needed to enter middle-skills jobs, regardless of whether they have been adequately prepared to further advance in their industry or switch industries at a later date.

VI. Additional Challenges for Low-Skill Adult Learners

Summary

The increasing gap between middle-skills jobs and those qualified to fill them necessitates programs that are successful in terms of basic skills development, employment, and continued education. High rates of success in these areas require design considerations specific to the challenges presented by low-skill adult learners.

The first of these challenges is a low level of internal persistence. Many of these adults struggle to stick with goals through completion, which can be seen in the low success rates of the programs in which they participate. The second challenge is that these adults face a large number of external barriers that learners on a more traditional path might not.

Low level internal persistence coupled with external barriers easily explains the low rates of success that are often seen in programs targeted to this population. Any program aspiring to prepare these learners for professional success must address both of these challenges.

Low Internal Persistence

Previously, we pointed out that GED holders are often not seen as equal to standard high school diploma holders due to perceptions related to a lack of soft skills. Persistence, or the ability to stick with a task or goal through completion regardless of obstacles, is one of the particular of the skills that appears to be underdeveloped in GED holders and high school dropouts. Few GED recipients persist to reach their goal of postsecondary education, and research has found that similarly, “GED recipients tend to exit employment, become divorced, and enter jail at rates similar to high school dropouts while high school graduates are much more persistent.”²⁹ While the population of adults with low literacy and numeracy skills is not solely limited to high school

²⁹ Hard Evidence on Soft Skills. <http://www.nber.org/papers/w18121.pdf>

dropouts and GED recipients, these groups make up a large enough percentage to allow us to identify low persistence skills as a defining trait in the overall low-skill adult population.

Not only do adult learners need support persisting through a program, their very persistence skills need work to ensure they see the best results from program completion. This is a well-established challenge, and one for which there are many solutions. Research points to four broad categories of support required pro encouraging or promoting adult persistence:³⁰

1. Establishing the student goals at the outset
2. Increasing the student's sense of self-efficacy
3. Ensuring and reinforcing progress toward reaching established goals
4. Helping students manage external forces

High External Barriers

Low-skill adult learners also face many external challenges in their path to education and improved employment. These barriers often arise as a lack of resources in one of three categories: time, money, and support.

Time

A majority of adult learners work full-time while seeking education, and may additionally have familial obligations to dependents. These factors constrain the total amount of time these learners can dedicate to education. The time constraint also means that low-skill adult learners are generally only able to pursue education opportunities on a part-time basis. Programs with duration times can help adult learners maximize this precious resource. When it is not possible to shorten programs, providers should communicate clearly the amount of study time needed per week. This can help adults manage their time, and recognize whether they have the necessary time to dedicate to training.

Money

In addition to funds needed for day-to-day living, education often incurs additional costs, in the form of transportation, curriculum, or ancillary supplies. Low-skill adults are often faced with limited financial resources so education programs that target this population must be priced low. As with the time commitment required for a study program, it is important for providers to be transparent with program costs so that adults can budget their finances accordingly.³¹

³⁰ "Persistence Among Adult Basic Education Students in Pre-GED classes" and "Persistence: Helping Adult Education Students Reach Their Goals."

³¹ When designing a program from the ground-up, the best strategy would be to assess the amount an average member of this population could dedicate towards education and training (without unduly burdening themselves) and develop curriculum with that price point in mind.

Support

Support, or lack of support, represents two types of barriers for low-skill adult learners. First, they may not have family and peer support in balancing life responsibilities, which can lead to added personal strain related to time and money. Second, within the context of obtaining postsecondary education, many of these learners may be first generation college students and unfamiliar with the bureaucracy of admissions, financial aid, and enrollment. When possible, programs should offer services that help support adult learners to balance life responsibilities. Additionally, it is also important to provide support for navigating the intricacies of postsecondary education.

VII. A Revised Approach: A Career Foundations Model

Summary

Programs that are successful in educating low-skill adults and readying them for middle-skills jobs must:

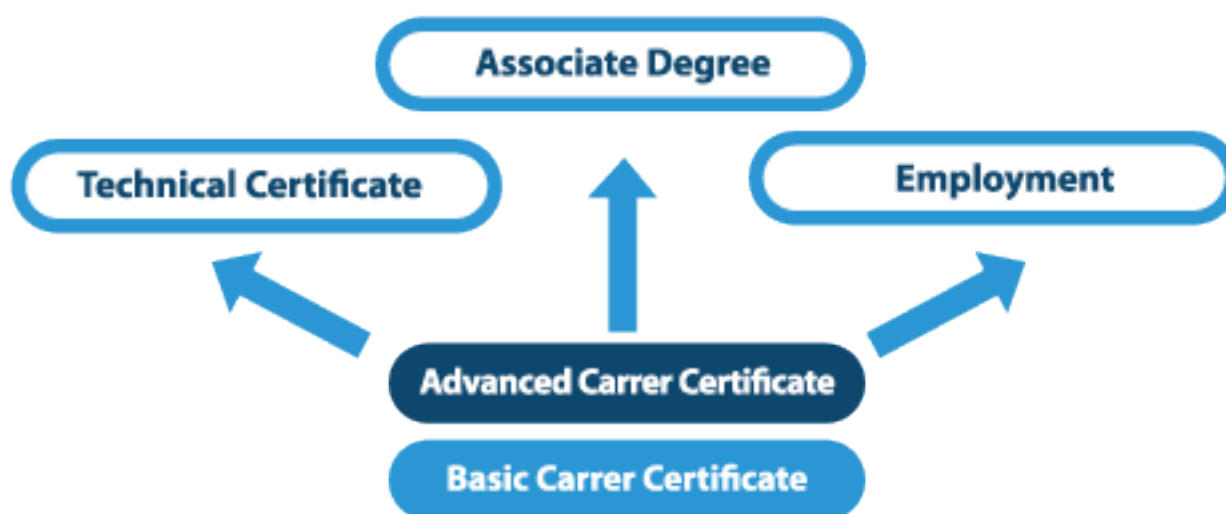
- Provide adequate training in soft skills as well as traditional hard skill areas
- Offer employment opportunities in middle-skills jobs
- Prepare adults for success and career promotion after obtaining initial employment
- Give adults a flexible hard and soft skill foundation that facilitates and encourages continued personal and professional growth
- Provide clear and successful pathways for pursuing and obtaining postsecondary credentials based on college credit.

Details

The three primary models currently serving as skills gap solutions in the U.S. meet some of success requirements listed in the Summary of this section but fall short in other areas. Of the three, workforce readiness and bridge career pathway models are the most complete solutions, providing standardized skills training mapped to clear employment opportunities. Both lack the necessary emphasis on soft skills, however, and current workforce readiness programs also fail to promote post-employment growth and attaining postsecondary education. Bridge career pathway programs provide the needed postsecondary education emphasis, but these programs also lack the necessary emphasis on soft skills, and their industry-specific focus generally leads to less career flexibility.

As an alternative, we propose a new model, the Career Foundations model. This model capitalizes on the proven successes of existing models while also addressing specific weaknesses in soft-skills training, continued career growth and flexibility after initial employment, and postsecondary education. The Career Foundations model is characterized by:

1. Entry points for Adult Basic Education (ABE), Adult Secondary Education (ASE), and English Language Acquisition (ELA) learners
2. Foundational basic and career skills training (including critical soft skills) needed to secure middle-skills jobs and to promote continued professional growth after employment
3. Multiple program levels -- Basic Career Readiness Training, Advanced Career Readiness Certificate, Specialized Industry/Occupational Certificate, and University credentials (Associate's or Bachelor's degree) -- each presenting specific career exit points



This model provides end-to-end support for each level of the workforce skills gap in the U.S., while also addressing the unique challenges of the population targeted to fill the skills gap, unskilled and underskilled adult learners. To ensure continuity with existing efforts in the U.S., skills in the Basic and Advanced Career Readiness Certificates are mapped to the Secretary's Commission on Achieving Necessary Skills (SCANS), and align with O*NET job groupings.

Recommended Program Model and Pathways

Career Foundations Pathways	Target Population	Description	Academic Outcomes	Career Outcomes
Basic Career Readiness Certificate	Adults below 8th grade literacy and numeracy skills. No high school Diplomas or GED.	Employee success courses integrated with numeracy and literacy skills.	Learners will assess above 8th grade levels of literacy and numeracy.	Learners are qualified for many O*Net Level 1 group jobs. Obtain some 21st Century workforce skills.
Advanced Career Readiness Certificate Pathway Readiness Certificate	Adults between an 8th grade and GED level of literacy and numeracy. High school diplomas or GED holders.	Advanced work readiness courses integrated with numeracy, literacy, and ICT skills in a business context.	Learners will assess at GED levels of literacy and numeracy.	Learners are qualified for many O*Net Level 2 group jobs. Obtain the full suite of 21st Century workforce skills.
Industry Certificate Pathway Readiness Certificate	Adults between GED and college-ready levels of literacy and numeracy.	Industry specific capstone “bridge” courses combined with college preparation, leading learners to technical certificates at community colleges.	Learners will assess above GED levels of literacy and numeracy.	Learners are qualified for many O*Net Level 3 jobs and prepared to gain entry in specific industry.
Associate’s Degree Pathway Readiness Certificate	Adults requiring 0-1 levels of developmental education for Math and/or English	General Education courses grouped in industry specify emphases, leading learners to complete an Associate’s degree.	Learners no longer need development courses. They are prepared for further postsecondary education (Bachelor’s)	Learners will be qualified for O*Net Level 3-4 group jobs

1. Basic Career Readiness Certificate

The Basic Career Readiness certificate program provides short-term training in basic literacy and 21st century work skills, as well as the soft skills needed for success in entry-level employment. The curriculum is also designed to inculcate a mindset of both personal and professional success. Students completing the Basic Career Readiness Certificate will be eligible for many O*Net Level 1 group jobs.

The Basic Career Readiness program consists of 27 lessons that address Successful Employee Mindset, Basic Mathematics for the Workplace, Reading Skills, and Writing Skills. Lesson situations and application activities are contextualized within the workplace.

This single-course certificate offers approximately 35-40 hours of learning (the equivalent of 1-hour of college credit) with an additional 35-40 hours of practice exercises. The curriculum can be delivered for independent, self-paced learning or in blended learning environments, and is available in both online and in print formats.

The Basic Career Readiness certificate program consists of the following modules.

Module 1: Moving Toward Personal Success
Module 2: Becoming a Successful Employee
Module 3: Number Sense at Work: Part 1
Module 4: Number Sense at Work: Part 2
Module 5: Reading Skills for Work
Module 6: Introduction to Writing for Work
Module 7: Taking the Next Step Toward Employment

2. Advanced Career Readiness Certificate

The Advanced Career Readiness certificate program features a curriculum that is entirely contextualized within workplace situations and tasks. This applied-learning framework is designed to give participants the academic and skills foundations they need to:

- Secure middle-skills jobs with higher earning potential and meaningful career advancement opportunities;
- Excel as employees in a wide range of roles, and advance with regards to responsibility and salary;
- Stand out for their communication and teamwork abilities;
- Demonstrate the problem-solving and leadership skills required to receive promotion;
- Adapt quickly to new technologies and other changes in the workplace;
- Develop a lifelong learning mentality that leads them to pursue ongoing educational opportunities.

The Advanced Career Readiness program consists of three courses: Business Writing and Communication, Business Math and Computing Skills, and Business Essentials.

Each of these courses offers between 100-120 hours of learning (the equivalent of a 3-hour college course), and can be delivered for independent, self-paced learning or in blended learning environments. The curriculum is also available in both online and in print formats.

The program provides the professional skills and competencies required for participants looking to find improved employment opportunities immediately, or to level-up in their current workplace. The Advanced Career Readiness curriculum also provides immediate pathways for extended academic work toward an Industry Certificate or Associate's degree in one of three pathways: Health Science, Information Technology, or Business and Manufacturing.

The Advanced Career Readiness certificate program consists of the following courses and modules.

Course 1: Business Writing and Communication

Module 1: Becoming a Highly Effective Employee
Module 2: Professional and Ethical Behavior in the Workplace
Module 3: Listening Skills for the Workplace
Module 4: Interpersonal Communication in the Workplace
Module 5: Business Communication in the Workplace
Module 6: Group Communication and Teamwork
Module 7: Introduction to Business Writing
Module 8: Organizing Your Writing
Module 9: Writing Basics: Paragraphs
Module 10: Writing Basics: Drafting
Module 11: Writing Basics: Revising, Editing, and Proofreading
Module 12: Business Writing in the Workplace
Module 13: Public Speaking
Module 14: Presentations for Information
Module 15: Argumentation and Persuasion
Module 16: Presentations for Persuasion

Course 2: Business Math and Computing Skills

Module 1: Critical Thinking and Problem Solving
Module 2: Problem Solving with Math
Module 3: Money Math

Module 4: Budgeting and Accounting Math
Module 5: Measurement, Conversion, and Calculation Math
Module 6: Data Analysis Math
Module 7: Introduction to Computer Systems
Module 8: Software, Data, and Information
Module 9: Information Systems, Computer Networks, and the Internet
Module 10: Productivity Systems and Software
Module 11: Applied Data Management

Course 3: Business Essentials

Module 1: Business Basics
Module 2: How Markets Work
Module 3: Supply and Demand
Module 4: Production and Costs
Module 5: Organizing and Managing the Business
Module 6: Organizing and Managing People
Module 7: Leadership and Decision Making
Module 8: Principles and Processes of Marketing
Module 9: Customers and Consumer Behavior
Module 10: Developing, Pricing, and Distributing Products

3. Industry Certificate Pathway

In partnership with community colleges, the Career Foundations model provides a clear pathway for students who wish to pursue an industry technical certificate after completing the Advanced Career Readiness certificate. This pathway includes a “bridge” course designed to prepare students adequately for taking courses at a community college, as well as clear set of courses to complete for an industry certificate in Health Sciences, Computer Technology, or Business and Manufacturing.

4. Associate’s Degree Pathway

In partnership with a regionally accredited university, the Career Foundation model provides a clear pathway for students who wish to pursue an Associate’s degree after completing the Advanced Career Readiness certificate. This pathway includes a “bridge” course designed to prepare students adequately for taking courses at a university, as well as clear set of courses to complete for earning an Associate’s degree in Health Sciences, Computer Technology, or Business and Manufacturing.

VIII. Conclusion

Research reveals a widening gap between demand for middle-skills jobs in the U.S. and the number of adults with the necessary hard skills and soft skills to fill those positions. Despite this obvious need, current Adult Continuing Education programs fall short in helping adults develop the necessary soft skills for middle-skills jobs, nor are they geared to prepare adults for career promotion and development post-hire. To properly equip adult population segments for professional success starting with middle-skills jobs, this study recommends a new model, the Career Foundations model. This model capitalizes on the proven successes of existing models while also addressing specific weaknesses in soft-skills training, continued career growth and flexibility after initial employment, and postsecondary education. The Career Foundations model is characterized by:

1. Entry points for Adult Basic Education (ABE), Adult Secondary Education (ASE), and English Language Acquisition (ELA) learners;
2. Foundational basic and career skills training (including critical soft skills) needed to secure middle-skills jobs and to promote continued professional growth after employment;
3. Multiple program levels -- Basic Career Readiness Training, Advanced Career Readiness Certificate, Specialized Industry/Occupational Certificate, and University credentials (Associate's or Bachelor's degree) -- each presenting specific career exit points.

Appendices

Appendix A

The chart below outlines the levels, score ranges, and associated tasks associated with the OECD's Program for the international Assessment for Adult Competencies (PIACC) assessment.³²

OECD PIACC Proficiency levels; Literacy and Numeracy			
Level	Score Range	Literacy	Numeracy
Below Level 1	Below 176 points	Tasks require the respondent to read brief texts on familiar topics and locate a single piece of specific information. There is seldom any competing information in the text. Only basic vocabulary knowledge is required, and the reader is not required to understand the structure of sentences or paragraphs or make use of other text features.	Tasks at this level require the respondent to carry out simple processes such as counting, sorting, performing basic arithmetic operations with whole numbers or money, or recognizing common spatial representations.
1	176 to less than 226 points	Tasks require the respondent to read relatively short digital or print texts to locate a single piece of information that is identical to or synonymous with the information given in the question or directive. Knowledge and skill in recognizing basic vocabulary, determining the meaning of sentences, and reading paragraphs of text is expected.	Tasks require the respondent to carry out basic mathematical processes in common, concrete contexts where the mathematical content is explicit. Tasks usually require one-step or simple processes involving counting; sorting; performing basic arithmetic operations; and identifying elements of simple or common graphical or spatial representations.
2	226 to less than 276 points Mathematics	Tasks require the respondent to make matches between the text, either digital or printed, and information, and may require paraphrasing or low-level inferences.	Tasks require the application of two or more steps or processes involving calculation with whole numbers and common decimals, percents and fractions; simple measurement and spatial representation; estimation; and interpretation of relatively simple data and statistics in texts, tables and graphs.

³² OECD, "United States - Country Note: Survey of Adult Skills First Results" <http://www.oecd.org/skills/piaac/Country%20note%20-%20United%20States.pdf>

3	276 to less than 326 points	Tasks are often dense or lengthy. Understanding text and rhetorical structures is often required, as is navigating complex digital texts.	Tasks require the application of number sense and spatial sense; recognizing and working with mathematical relationships, patterns, and proportions expressed in verbal or numerical form; and interpreting data and statistics in texts, tables and graphs.
4	326 to less than 376 points	Tasks require the respondent to perform multiple-step operations to integrate, interpret, or synthesize information from complex or lengthy texts. Many tasks require identifying and understanding one or more specific, non-central idea(s) in the text in order to interpret or evaluate subtle evidence-claim or persuasive discourse relationships.	Tasks require analysis and more complex reasoning about quantities and data; statistics and chance; spatial relationships; and change, proportions and formulas. They may also require understanding arguments or communicating well-reasoned explanations for answers or choices.
5	376 points and above	Tasks require the respondent to search for and integrate information across multiple, dense texts; construct syntheses of similar and contrasting ideas or points of view; or evaluate evidence based arguments. They often require respondents to be aware of subtle, rhetorical cues and to make high-level inferences or use specialized background knowledge.	Tasks at this level may require the respondent to integrate multiple types of mathematical information where considerable translation or interpretation is required; draw inferences, develop or work with mathematical arguments or models; and critically reflect on solutions or choices.

Appendix B

The chart below outlines the levels, score ranges, and abilities associated with the National Assessment of Adult Literacy (NAAL).³³

³³ White, S., and Dillow, S. (2005). Key Concepts and Features of the 2003 National Assessment of Adult Literacy (NCES 2006-471). U.S. Department of Education. Washington, DC: National Center for Education Statistics. <https://files.eric.ed.gov/fulltext/ED489067.pdf>

OECD PIACC Proficiency levels; Literacy and Numeracy

Level	Score Range	Prose Literacy Score Range	Document Literacy Score Range	Quantitative Literacy Score Range
Below Basic	Prose: 0-209 Document: 0-204 Quantitative: 0-234	Locating easily identifiable information in short, commonplace prose texts.	Locating identifiable information and following written instructions in simple documents (e.g., charts or forms)	Locating numbers and using them to perform simple quantitative operations (primarily addition) when the mathematical information is very concrete and familiar.
Basic	Prose: 210-264 Document: 205-249 Quantitative: 235-289	Reading and understanding information in short, commonplace prose texts	Reading and understanding information in simple documents.	Locating easily identifiable quantitative information and using it to solve simple, one-step problems when the arithmetic operation is specified or easily inferred.
Intermediate	Prose: 265-339 Document: 250-334 Quantitative: 290-349	Reading and understanding moderately dense, less commonplace prose texts as well as summarizing, making simple inferences, determining cause and effect, and recognizing the author's purpose	Locating information in dense, complex documents and making simple inferences about the information	Locating less familiar quantitative information and using it to solve problems when the arithmetic operation is not specified or easily inferred.
Proficient	Prose: 340-500 Document: 335-500 Quantitative: 350-500	Reading lengthy, complex, abstract prose texts as well as synthesizing information and making complex inferences	Integrating, synthesizing, and analyzing multiple pieces of information located in complex documents.	Locating more abstract quantitative information and using it to solve multi-step problems when the arithmetic operations are not easily inferred and the problems are more complex.

Appendix C

National Readiness Workforce Programs

Overview

At a national level, three purveyors of workforce preparedness credentials emerged through the late 1990s and early 2000s. These credentials include the Workforce Skills Certification System (WSCS) created by CASAS, the National Career Readiness Certificate (NCRC) created by ACT, Inc., and the National Work Readiness Credential (NWRC) created by the National Work Readiness Council. Originally we intended to analyze all three of these offerings, however there is a general lack of evidence that the NWRC continues to be being offered, so this appendix focuses solely on the WSCS and the NCRC. Though deceptively similar on the surface, the WSCS and NCRC provide two distinct models of certification. By comparing these programs we seek to provide a nuanced portrait of what each seeks to accomplish and where the gaps are between them. In service of that goal, the programs are described in depth below and compared based on selected criteria.

Workforce Skills Certification System

The WSCS is the oldest available workforce preparedness program, established in 1998. This certification system provides curriculum, instructional materials, and assessments to transition low-skill youth and adult learners into jobs. While the certification assessment requires high school reading levels, this integrated system provides the curriculum necessary to upskill youth and adult learners who are entering the workforce or transitioning to work. Students in this system take a pre-assessment to identify levels of academic skills and soft skills, then develop the needed skills as identified on the profile. Finally, once participants have made trackable progress on periodic assessments, they qualify to complete the two certification assessments, detailed below.

1. **Certification Assessment Battery:** measures reading, math, problem solving, and critical thinking across the four applied contexts of banking, construction, health, and ICT
2. **Certification Assessment Portfolio:** measures soft skills such as team skills, customer service, project development, and presentation through project based learning and work site performance.

Obtaining a certificate is not guaranteed, and is based on receiving certain scores on the CAB and CAP. Local service providers, trained and licensed by CASAS, administer these assessments and certify the acquisition of essential skills.

National Career Readiness Certificate

The NCRC is marketed as a credential that signals to employers that an individual possesses basic workforce skills for common jobs. As such, it is designed for high school students and adults seeking employment. The certification is tied directly to three of ACT's WorkKeys curriculum. In order to obtain certification, participants must pass the three WorkKeys assessments associated with Applied Math, Graphic Literacy, and Workplace Documents. It is encouraged that participants possess a 9th grade reading level prior to taking these assessments.

Depending on their scores, participants are certified at Bronze, Silver, Gold, and Platinum levels which are in turn tied to jobs profiled by ACT. Below, we've broken these levels down:

- **Platinum:** Signifies an individual has scored at least a Level 6 on each of the three assessments, meaning they are eligible for 100% of ACT profiled jobs.
- **Gold:** Signifies an individual has scored at least a Level 5 on each of the three assessments, meaning they are eligible for 98% of ACT profiled jobs
- **Silver:** Signifies an individual has scored at least a Level 4 on each of the three assessments, meaning they are eligible for 67% of ACT profiled jobs
- **Bronze:** Signifies an individual has scored at least a Level 3 on each of the three assessments, meaning they are eligible for 16% of ACT profiled jobs.

Once a participant has scored, at minimum, a Level 3 on the WorkKeys assessments, they receive the NCRC certified as well as additional information on which ACT profiled jobs would potentially be a good match based on assessment scores.

National Programs Comparison

As mentioned earlier, the NCRC and WSCS are similar in that both certify individuals for work readiness. Going a single level deeper, they both utilize fairly similar processes. Both processes involve pre-assessing individuals, targeting any low-skill areas with additional learning, and finally offering certification assessments. Furthermore, neither program exists in a vacuum. Both the NCRC and WCSC are geared toward working in partnership with state and regional entities (though WSCS can work at a more granular level). Delving deeper into each reveals key differences that are important as TEL Library beings constructing our own Career Foundations program. The table below captures some of the immediate distinctions between the three national work readiness credentials.

	NCRC (National Career Readiness Certificate)	(WSCS) Workforce Skills Certification
Certifying Body	ACT, Inc.	CASAS (Comprehensive Adult Student Assessment System)
Legal Status	For profit	Nonprofit
Government Agency Support	None	U.S. Department of Labor, U.S. Department of Education
Test Administration	ACT Testing Centers, Licensed sites	Trained WSCS assessors
Program implementation cost	Information not available	<p>One-time costs:</p> <ul style="list-style-type: none"> • \$1,685.00 > TOPsPro Enterprise installation <p>Annual costs:</p> <ul style="list-style-type: none"> • \$800.00 > online support fee • \$0.40 per student > Student record management fee <p>Student packages:</p> <ul style="list-style-type: none"> • \$35.00 > workforce skills certification package (min. order of 10)
Target Student Population	Adult job seekers (new and existing), High school students	Adult job seekers, native and non-native English speakers, youth job seekers
Aligned Standards	SCANS1 O*Net2	SCANS, O*Net
Assessment Reading level	9th grade	9th-12th grade (GED level)
Soft Skills Assessed	Not in core WorkKeys exams - optional exams offered for soft skill assessment.	Yes
Hard Skills Assessed	Yes	Yes

³⁴ Secretary's Commission on Achieving Necessary Skills 2 U.S. Department of Labor's Occupational Information Network

Below, we will further analyze the differences in key areas of these programs.

1. Implementation Cost

As you can see from the table above, it can be costly to implement a turnkey solution. Implementing the WSCS for 10 students would roughly cost \$2,839 (author's calculations) based on the 2018 CASAS Catalog information. That number does not include training costs, which we were unable to identify. There are many configurable options for implementing the NCRC and WorkKeys curriculum, and separate prices for government and educators vs. employers; which makes it difficult to calculate an average cost for this program. Fortunately, Norma Rey-Alicea and Geri Scotts were able to identify an estimate from ACT for Rhode Island in their Survey of Selected Work Readiness. This estimate included a \$100 licensing fee to each provider site to score the tests, but would require separately licensing fees from Keytrain and Worldwide Interactive Network for the WorkKeys instructional materials (20). Keeping in mind that estimate was for a state-wide implementation, if Rhode Island sought to implement a mere thirty test centers - without purchasing instructional material licensing - the implementation cost would be roughly equal to that of a single WSCS implementation.

2. Business Model

While the process of obtaining each of these certificates is similar at a high level, the business model each employs is significantly different. ACT Inc. is a for profit entity and primarily seeks to partner with State or County agencies to deploy the WorkKeys curriculum and NCRC certification while working with employers to support the certificate and certificate holders. The partnerships formed with employers are mutually beneficial to both employers and ACT. Employers agreeing to use WorkKeys in their hiring processes complete profiles of specific jobs, while ACT can provide candidates that are a match to documented skills. In return, this encourages more individuals to seek certification to apply for positions with these employers, and the job profiles are added to ACT's occupations database which is searchable by job seekers.

CASAS, on the other hand, is a nonprofit entity and primarily provides the WCSC as a customizable yet turn-key certificate system for workforce development programs. This system works at the state, regional, and local levels to support adult education endeavors such as state, One-Stop Workforce Development Agencies, Workforce Investment Boards, Community College or Schools, and Businesses. As part of their turnkey solution CASAS provides the entire curriculum, testing system, student management system, and student packets -- with other materials available for order as well. In this way CASAS is the provider of the WCSC, but implementers of the Workforce Skills Certificate are responsible for partnering with local businesses to support implementation projects - wherever they may be - as well as training and credentialing program applicants.

3. Skills Measured

Apart from implementation costs and business models, the last key area of differentiation between the two certificates is the skills their assessments measure. The three WorkKeys assessments that the NCRC is comprised of primarily focus on the hard skills of math, functional literacy, and writing in the workplace. Additional WorkKeys curriculum modules that focus on soft skills are available (and can be required by partner employers) but are not necessary to obtain the NCRC. In this regard, while the NCRC does have a workplace focus, the primary skills assessed are similar in many ways to the GED exam.

Conversely, the WSCS better addresses both soft and hard skills by requiring two separate assessments that addresses each respective area. This is an important area of distinction, as it is soft skills that employers are seeking, something that can be made clear when employers compare candidates with high school diplomas vs. candidates with GEDs. Adults who pass the GED test certainly demonstrate they have the same academic skills as individuals who obtain a regular high school diploma but the GED, "...signals to employers a lack of the non cognitive or soft skills needed for success in higher education the job market." (Spaulding and Johnson, 14). With a more intentional focus on soft skills, the WSCS provides additional value to the adult learners that it supports.



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