



RESEARCH REPORT

Realizing Employment Goals for Youth through Digital Badges

Lessons and Opportunities from Workforce Development

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Realizing Employment Goals for Youth through Digital Badges

Low-income youth and youth of color face challenges in the labor market such as persistent discrimination, social and geographic isolation, low-quality educational options, high unemployment, disconnection from both school and work, difficulty completing postsecondary education, and difficult-to-navigate credentialing options. At the same time, employers report difficulty identifying candidates with the necessary skills for entry-level jobs. The challenges employers face are driven by a range of issues, including the lack of alignment between education programs and the labor market, a credentialing system that does not effectively communicate the skills youth have gained, and the inefficient mechanisms that employers use for identifying candidates. Digital badges offer a potential solution to this disconnect in the labor market by better communicating the skills young people attain and employers value.

Digital badges are representations of achievement that can be shared online and include links to additional information about the learning and assessment associated with the badge. Digital badges have been used to engage young people of all ages in learning by helping them identify and pursue their passions and by rewarding them for their accomplishments. Proponents of digital badging see it as a mechanism for expanding opportunity, improving postsecondary and labor market outcomes, and solving some of the challenges faced by employers in finding a qualified workforce.

To date, use of digital badges to realize youth workforce goals has been limited; additional research is needed to understand the effects of digital badges on postsecondary and workforce outcomes. As leaders work to build recognition and perceived value of badges in postsecondary education and the labor market, however, some important lessons can be learned from workforce development. The purpose of this report is both to draw lessons for digital badging from research and best practices in the workforce development field and to identify opportunities for digital badges in supporting youth workforce development. This report is intended to inform national and local leaders who are designing and implementing digital badging initiatives and workforce development leaders seeking context for how digital badging can be applied in their programs.

BOX 1

Definition of Terms

- **Digital badges** are alternative credentials that are displayed and shared online; they can be used to recognize the attainment of skills and competencies whether they are learned in formal or informal learning environments.
- **Workforce development** refers to policies and programs that for many decades have aimed to improve the employment prospects of disadvantaged populations—including youth—through education, training, job matching, and supportive services.
- **Badge currency** in the context of this paper is the goal of having badges recognized and valued by employers and postsecondary institutions.
- **Entry-level jobs** are those that require the least level of education within a company or workplace. Depending on the employer or sector, entry-level jobs can require varying levels of skills and credentials, from less than high school to a college degree.
- **Soft skills** are noncognitive skills, behaviors, and character attributes that are valuable in the workforce. Examples include persistence, adaptability, self-discipline, and the ability to effectively communicate and work in teams.
- **Hard skills** are the technical skills and applied knowledge specific to an industry, occupation or job. Examples include computer programming, accounting, welding, and food preparation.

The following key lessons, explored in more detail in the report, are strategies for developing digital badges that can improve labor market outcomes for youth:

1. **Engage employers in the design** of learning opportunities and badges and ensure that they are aligned with industry needs for both hard and soft skills as well as current hiring practices.
2. **Develop local pilots and collaborations** to expand knowledge of postsecondary systems and employer needs and to build badge currency in the labor market, while joining existing efforts to improve credentialing or labor market outcomes for youth.
3. **Consider key opportunities for badges to demonstrate hard and soft skills**, and link badges to existing work experience, workforce development and other programs where skills are not easily documented.

4. **Focus on badge quality and validation**, and guard against overproliferation of badges in an already complex credentialing landscape.
5. **Make badges broadly available** to all learners in any learning context, not just to disadvantaged youth, so that badges do not have the unintended consequence of stigmatizing badge earners.

The remainder of this report is organized into four sections. It begins with an overview of the challenges faced by disadvantaged youth in the labor market, providing context for the problems digital badges may help solve. The second section explores in more detail what digital badges are, how they have been used, and the current research on their use in improving workforce and labor market outcomes. In the third section, we examine relevant lessons from the workforce development field and make recommendations for those aiming to use digital badges to improve youth postsecondary and labor market outcomes. The final section summarizes key lessons in a brief conclusion.

Challenges Youth Face in the Labor Market

When recruiters hire youth for entry-level jobs, they evaluate candidates' employability based on a combination of their employment histories, academic qualifications, and extracurricular activities (Cole et al. 2007). Evidence shows that personal networks, along with discriminatory hiring practices, also play a role in recruitment practices and hiring decisions (Spaulding et al. 2015). In fact, many of the challenges that young, disadvantaged job seekers face stem from the effects of discrimination and poverty. With a greater likelihood of residing in isolated, low-income neighborhoods, youth of color are more likely to attend low-quality schools, face disciplinary action in school, be involved in crime or targeted for arrest, and have limited employment networks for accessing jobs. The weakening economy and changes in the structure of the labor market have also disproportionately affected youth (Spaulding et al. 2015). Given these structural issues and knowledge about what recruiters look for in entry-level workers, youth face the following challenges in the labor market:

- **Youth have higher rates of unemployment than the general population.** During the summer months of 2015, the average monthly unemployment rate for youth ages 16 to 19 was 18.3 percent compared with just 5.4 percent for workers overall. Black or African American and Hispanic or Latino youth had even higher rates of unemployment, with rates of 34.0 percent and 22.4 percent, respectively.¹ Early work experience has benefits for employability and

intermediate- and long-term employment outcomes, including hours worked and earnings (Baum and Ruhm 2014).

- **Many youth who are not working are also disconnected from school.** An estimated 6.7 million young people ages 16 to 24 are neither enrolled in school nor working; they are often referred to as “disconnected youth” or “opportunity youth.” Employment prospects are further diminished when young people do not have early work experiences and face challenges in school (Hossain and Bloom 2015).
- **Low rates of college completion mean that many young people do not acquire the credentials necessary for entry-level jobs and that are associated with higher labor market earnings.** Nationwide only about 35 percent of individuals starting college at two-year institutions and 61 percent of those starting at four-year colleges and universities earn a certificate or degree within six years.²
- **Even when young people are able to complete academic programs, these programs are often not aligned with industry needs** (Bills 2003; Cappelli 2014; Deil-Amen 2006; Manpower 2013). Although the lack of technical skills is an issue in many sectors, employers also note the lack of soft skills among the entry-level workforce (Cappelli 1992; Handel 2003; Moss and Tilly 2001; Rosenbaum 2001).
- **Both high school credentials and college degrees do a poor job of communicating the skills and knowledge graduates have obtained through that experience and may instead serve to communicate other attributes to employers** (Bills 2003). High school credentials in the United States are largely undifferentiated despite the fact that students may leave high school with varying skills (Bills 2003; Brown 2002). And although some employers may use college credentials as markers of academic achievement, others see college credentials as evidence of precollege abilities or valued nonacademic skills (Arkes 1999; Bills 2003).
- **Low-income students and young people of color may not have equal access to opportunities to build the skills and gain the experiences employers look for.** In addition to formal education, enriched learning in and out of school and work experience opportunities can help young people develop the skills employers seek. Relative to low-income students, higher-income students have better access to these opportunities, creating what some observers call an “opportunity gap” (Council of Economic Advisers 2015; Kaushal et al. 2011; Reardon 2011).

In addition to these challenges for youth in the labor market, employers face barriers to finding the right job candidates. Resumes are arguably an ineffective means of communicating candidate qualifications because they reflect unverified statements by a candidate about his or her skills. The transition to online application processes has increased the volume of applications that human resources departments must review, in turn increasing the automation of resume screening, which also may not effectively identify relevant credentials (Cappelli 2012).³ In addition to college credentials employers must sort through many other credentials, such as credit and noncredit college certificates, occupational licenses and certifications, and other industry credentials. Difficulty navigating these credentials and identifying workers with the appropriate skills has led some employers to design and implement online aptitude or personality assessments to further screen applicants if they have the resources to do so.⁴ In addition, discrimination or implicit bias enter into the hiring process as employers attempt to screen candidates based on soft skills—which are much more difficult to assess objectively (Moss and Tilly 2001). Thus, there are inefficiencies not only in how the mastery of skills is communicated but also in how these skills are identified.

Given the challenges that young people face in the labor market and the barriers to employers identifying qualified candidates for jobs, digital badges are one potential strategy for improving outcomes. If badges can reach disconnected youth and demonstrate all youths' relevant skills and characteristics to potential employers and postsecondary programs, they may provide a viable approach for improving workforce opportunity for youth.

The Promise of Digital Badges

Digital badging has gained traction in the past several years as a way to digitally document and share evidence of learning. The John D. and Catherine T. MacArthur Foundation (the MacArthur Foundation) expanded the frontiers of digital badging when it funded the Mozilla Foundation to develop open-access badging software in 2011 and when it announced, together with Mozilla and the Humanities, Arts, Science, and Technology Alliance and Collaboratory, a \$2 million competition to fund 30 digital badging projects in 2012.⁵ Apart from supporting badge development and testing, the competition also fostered a growing community of educators and technologists interested in using digital badges to transform learning and assessment and to connect youth and others with jobs.

Because digital badging is so new, most writing on the topic is exploratory and describes badges' potential rather than actual use in the labor market. Moreover, descriptions of their defining

characteristics vary by authors' areas of interest. Below, we describe how digital badges are distinct from other types of credentials before describing how certain characteristics of digital badges suggest how they might improve labor market outcomes among disadvantaged youth.

What Are Digital Badges and What Are They Designed to Do?

A digital badge is an online credential or representation of achievement. Generally, they visually represent some skill, attribute, or mastered content; they are stored and shareable online; and they contain metadata, or details and documentation of learning that are viewable to those with whom they are shared. Each of these characteristics is essential to the vision for digital badges, which involves recognizing informal learning, communicating more information to employers than traditional credentials, and making career pathways visible and accessible.

Many commentators use the term *digital badges* interchangeably with similar terms describing online credentials such as *microcredentials* and *nanodegrees*, but some writers and academics make distinctions between them (Grant 2014). Mozilla and Peer 2 Peer University (2012) explain that digital badges can represent broad or specific skills whereas microcredentials and nanodegrees are defined by their granularity. Both nanodegrees and microcredentials are typically offered and earned through a formal education setting, often online; digital badges are meant to capture both informal and formal learning (Erickson 2015).⁶

Digital badging proponents' vision goes far beyond the description of a single badge. A fully operating badge system includes badges, badge assessment, and an online infrastructure that enables badge issuing, grouping, and endorsement. In such a system, badge issuers are the organizations offering learning opportunities, such as community-based after school programs, teen library programs, or employer-based training programs. Both these issuers and other badge endorsers, such as post-secondary institutions or employers, assess and validate badges, which represent hard skills such as computer programming and soft skills such as persistence and teamwork. Badge earners might assemble badge portfolios to demonstrate aggregated competencies through metabadges, and multiple badge issuers and endorsers might assess any given badge. Those with whom badges are shared see information about how and when each badge was earned, its issuer and endorsements, and documented evidence for the skill represented (Grant 2014; Mozilla Foundation and Peer 2 Peer University 2012). A further step would allow algorithmic discovery of badges, meaning employers could use an online platform to search for potential employees with badges indicating they possess desired skills.

If a fully functioning badge infrastructure develops, the following aspects of digital badges hold particular promise for using badges in workforce development:

- **Digital badges can capture informal learning.** The National Science Board and the Organisation for Economic Co-operation and Development have separately promoted expanding and recognizing informal and experiential learning (i.e., learning that happens outside of school or has a hands-on component) for its economic, educational, social, and psychological benefits (National Science Board 2010; Werquin 2010). Digital badges are designed for this purpose. For youth with specific learning experiences from several informal sources, such as after-school library programs or volunteering, digital badges can communicate their competencies to employers.
- **Digital badges can represent a diverse range of specific abilities and accomplishments.** Students who do not complete postsecondary programs but receive valuable training before leaving should be able to earn credentials for what skills they gained before leaving. Digital badges can capture these competencies, which students can then share with either potential employers or with future postsecondary programs for credit or for prior learning assessment. Digital badges can also capture attainment of specific technological competencies as employers' demands for such skills rapidly evolve.
- **Digital badges contain evidence of achievement that can be shared online.** Digital badges could improve upon traditional credentials even for youth who complete them in a formal setting because they contain evidence or documentation of skills. High school diplomas contain limited information about the diverse skills students may learn in electives such as robotics or photojournalism (Bills 2003). Even college transcripts mean very little to employers when grade point averages bear no promise of consistency across institutions, giving college and degree reputations outsized importance relative to students' specific course work (Brewer et al. 1999; Thomas 2000). Listing additional skills on resumes does little to remedy the problems with these formal credentials because employers must take extra steps to verify them, and lists of skills by themselves poorly communicate modern workplace competencies (Kane et al. 1990).

Who Is Using Digital Badges and How Are They Using Them?

Digital badges are being used in a variety of programming both on- and offline for young people of various ages. Badges are gaining some traction in educational programs, but their use for improving

workforce outcomes appears to be more limited. Further research is needed to understand how digital badges are being implemented in various contexts and for different populations, as well as their potential impact on students, job seekers and employers. Below, we offer examples of their use to provide a more concrete sense for the potential of digital badges in workforce development.

POSTSECONDARY INSTITUTIONS

Some universities have created optional badges for students and departments to adopt; others have integrated them directly into degree programs. The University of California, Davis, pioneered badging in university courses after winning funding to create its badging initiative. More recently, the University of Michigan created a digital badging option for any department or program to adopt, called Mblem. According to an information page written for employers, the engineering program there piloted a series of badges that have been expanded and refined.⁷ Pennsylvania State University has received attention for creating its own badging platform, Digital Badges at Penn State. Its college of education has integrated digital badges into its graduate courses in learning, design, and technology.⁸

Institutions serving colleges and universities have also begun investing in digital badges. In 2014, Pearson, a leading textbook publisher and learning company, created a badging platform called Acclaim, marketed to colleges and other credentialing institutions who wish to implement digital badges into their programs. The Acclaim badges are shareable through social media such as LinkedIn and Twitter.⁹ BloomBoard's Marketplace now offers digital microcredentials as part of its online library of professional development resources that serve over 100,000 educators. Relay Graduate School of Education, the Center for Teaching Quality, and the University of San Diego's Mobile Technology Learning Center designed BloomBoard's first set of digital credentials on specific skills such as "Setting Goals for Students" and "Kind Critiquing."¹⁰

EMPLOYERS AND INDUSTRY

Some organizations and businesses are using digital badges as professional training credentials. International Business Machines Corporation (IBM) has developed several badges as part of its training arm, some associated with IBM products and others associated with more general behaviors, such as an "inventor" badge for those who have "demonstrated proven ability to design and implement" technological solutions to complex problems.¹¹ An often-cited example of digital badges in workforce development is Badges for Vets, a start-up website that won funding to create a prior learning credentialing system for veterans and employers. A network emerged as planned to help veterans find jobs, but the broader badge ecosystem did not develop, in part because of coordination difficulties (Hickey et al. 2015).

Similar to Pearson's role in developing digital badge software for postsecondary institutions, Professional Examination Service, a testing service, now assists organizations and companies interested in creating digital badges for hiring or training. Industry associations also offer digital badges. For example, the National Retail Federation, which offers training and certification in various skills needed for retail jobs, now awards digital badges in lieu of paper certificates in areas such as "customer service and sales" and "retail management."¹²

OTHER BADGING INITIATIVES

Other efforts have focused specifically on digital badging for young people, but the connection to employment is not yet strong. For example, an initiative called Cities of Learning, funded by the MacArthur Foundation, aimed to improve youth outcomes by expanding and making visible opportunities for informal learning in cities, in part through the use of digital badges. However, initial efforts had a limited focus on workforce outcomes. In Los Angeles, initiative partners brought together stakeholders in the workforce system to identify common learning goals for soft skills development programs and attached badges to the achievement of these outcomes. Pittsburgh convened employers in summer 2015 as an initial step in identifying potential partners and collaborated with the public workforce system to attach badges to the region's summer youth employment program.

In fall 2015, Cities of Learning transitioned into a new national initiative called LRNG, which aims to scale the approach of linking digital badges to the development of skills across multiple learning environments, including in-school, out-of-school, employer-based and online learning. This effort is in a period of initial implementation; a new badging platform and expansion to a larger group of cities launched in spring 2016. It is too early to say how the initiative will use digital badges to improve youth employment outcomes, but one strategy is to focus on badging summer youth employment programs.

Another important initiative relevant to digital badging is Connecting Credentials, which is supported by the Lumina Foundation and involves a broad cross-section of stakeholders from K-12 education, postsecondary education, industry, youth development, and digital learning. Its goal is to create a framework that more clearly defines and connects the array of credentials that exist in the US education system.¹³ In the draft document developed as part of this collaboration, digital badges are mentioned as one of the many credential types driving the need for a common language and understanding of available credentials (Lumina Foundation 2015).

What Is the Evidence Base for Digital Badges' Value in the Labor Market?

Literature on digital badging and other microcredentialing approaches is expanding, but much of it focuses on their potential to improve learning outcomes rather than workforce outcomes. Grant (2014) describes several research studies that focus on the effect of badges on motivation, specifically their effectiveness in promoting participation and success within learning communities, and especially those online. These studies suggest that badges' effects can depend critically on the type of badge, learner, and context. Less rigorous studies have measured badging programs' success in engaging youth using anecdotal evidence together with data on the number of badges created, number of badges earned, and number of badge earners (Grant 2014; Piha 2015).¹⁴ Few studies address the value of badges as credentials outside of the context in which they are earned.

Among those who have focused on the value of digital badges to employers are education researchers at Indiana University's Center for Research on Learning and Technology, whom the MacArthur Foundation funded to study those groups that won funding to carry out digital badging projects in 2012 (Hickey et al. 2015). Based on data and observation of 29 digital badging projects, the researchers developed design principles for badges' ability to recognize learning and to communicate it to outside stakeholders (Chow and Otto 2014). Among other findings, the authors observe that badges work better where content and technology already exist and where they offer unique evidence of learning. It was difficult enough for the funded badging projects to achieve value for their badges within their own programs, but among those who achieved internal value and pursued external badge currency, the most promising ways to do so—academic credit and external endorsements—proved the most difficult for badging programs to accomplish.

As proof of concept that digital badges could eventually have value for employers and others outside of a learning or training context, Grant (2014) offers examples of social media websites that have created ways for members to post evidence of their skills for potential employers to view: the coding website GitHub created an Open Source Report Card feature for its users, and online programmer forum Stack Overflow created a platform it calls Careers 2.0. User profiles on these platforms are functionally similar to digital badge portfolios: they display evidence of users' hard skills in programming as well as users' habits and dispositions, captured through metrics on their forum contributions and their reputations in the online community. LinkedIn is another online platform used for professional and employment-specific purposes. Employers in some sectors now use Open Source Report Card, Careers 2.0, or LinkedIn for screening applicants, but Grant notes that it took time for these platforms to gain recognition, suggesting that building badge currency is “by no means a passive

process . . . while badges may have inherent value to learners and issuers, it can require effort to build acceptance and demand among employers” (2014, 29).

Lessons and Opportunities from Workforce Development

The remainder of this paper identifies lessons learned from workforce development and potential opportunities for using digital badges to improve youth workforce programs. We discuss research from the following relevant areas of workforce development:

- employer engagement and demand-driven programs
- alternative credentials for fundamental skills, including second chance programs and work-readiness credentials
- strategies for building work readiness, including classroom-based soft skills development and work experience opportunities
- postsecondary access and success initiatives

Employer Engagement and Demand-Driven Programs

Engaging employers in workforce development programs is an important strategy for ensuring the success of program graduates in the labor market. Employer-led approaches or those with strong employer involvement in various aspects of programs have had some of the most robust program impacts (Barnow and Spaulding 2014; Spaulding and Martin-Caughey 2015). Historically, workforce development programs used a “train and pray” approach, where people are trained for jobs with little knowledge about whether the jobs people are being trained for exist or whether people are being provided with relevant skills.¹⁵ However, the field has evolved to see the importance of understanding industry trends and engaging employers in various aspects of program design and delivery, as well as at the point of job matching and placement. The field has also evolved away from the “hat in hand” approach to job development; in the past, the conversation with employers resembled a request for charity. The literature on employer engagement suggests that a more effective model is one where workforce development organizations make a case for the value proposition to employers (Spaulding and Martin-Caughey 2015).

The focus on employers as customers of the workforce system has been reflected in federal policy for several decades but was recently made stronger in the main law governing workforce programs, the Workforce Innovation and Opportunity Act of 2014 (WIOA). WIOA puts stronger emphasis on developing demand-driven programs in several ways, including pushing for the implementation of sector-based strategies. Sectoral workforce development initiatives that target particular industries or clusters of occupations are designed in partnership with employers, often involving many actors within a local workforce system. In addition to providing employment-related skills training, these efforts often aim to create changes in local workforce systems that benefit both employers and workers (Conway et al. 2007). Because of rigorous evaluations showing their effectiveness and the focus on building sectoral strategies in federal policy, sectoral initiatives are expanding across the country (Maguire et al. 2010; Woolsey and Groves n.d.).

Outside of their participation in such efforts, postsecondary institutions have been pushed to ensure programs are preparing students with the requisite skills for the labor market as well as to understand labor market demand and engage employers in several federal competitive grant programs, including the High Growth, Community-Based Job Training grant program and the Trade Adjustment Community College and Career Training grant program.

A key to engaging employers is speaking the same language as business, and many workforce organizations have worked to bring in staff with industry expertise and to keep up with the latest industry trends. The sectoral approach allows workforce organizations to become knowledgeable about particular industries and become fluent in the language of these industries. Organizations also use available labor market data to understand employer needs and as a starting point for engaging with industry.

LESSONS FOR DIGITAL BADGES

If the lessons from workforce development are instructive to those seeking badge currency in the labor market, then it is clear that employer engagement is key. Although marketing badges to employers is important, the skills reflected in the badges must also be valued by employers. To ensure this, employers should be engaged not only as consumers of badges but as input into the learning experiences that badges are intended to recognize.

Like workforce development, employers can engage in the development of learning opportunities and badges in several ways (Spaulding and Martin-Caughey 2015). For example, employers can

- serve on oversight and advisory boards for learning or badging organizations;

- provide input on the design of learning experiences or badges or provide specific information about the skills required in certain occupations or industries;
- assist in the delivery of programs as a way of transmitting skills and providing real world exposure to specific industries, including hosting learning experiences;
- consider badges when hiring for open positions; and
- join collaborative efforts involving groups of employers from the same industry or employing people in the same career clusters.

Badging efforts can also draw on available information to identify the skills needed for the workplace. Several frameworks are available that document the soft skills employers seek, including the US Department of Labor’s Secretary’s Commission on Assessing Necessary Skills, the US Department of Education’s Employability Skills Framework, and the P21 Partnership for 21st Century Learning. The US Department of Labor operates O*NET, which offers information describing the education and skills needed for particular occupations. Some communities have worked to provide this information at the state or local level through local workforce development boards¹⁶ (required oversight bodies at the state and local level for federal workforce programs) and local labor market information services.

Industry associations can provide information for programs seeking to understand employer needs or to find opportunities to connect with specific employers. Local sectoral efforts and collaborations, local workforce development boards, and other local workforce development actors can also be an important source of knowledge and offer opportunities for partnership. Systems vary greatly, so identifying the appropriate local workforce development and employer partners and related initiatives is key to determining what local resources can be leveraged (Eyster et al. 2016).

RECOMMENDATIONS

- Engage employers in the design and delivery of learning opportunities and in the development of badges to ensure that badges are relevant to industry needs.
- Facilitate employer engagement by tapping into knowledge and contacts available through local workforce programs and initiatives, as well as industry associations.
- Build on existing frameworks and systems for using badges to measure attainment of hard and soft skills.

- Market badges to local workforce system stakeholders using industry language and by demonstrating that badges help solve human resource problems for employers.

Alternative Credentials

Digital badges may be viewed as alternative credentials that aim to provide more accurate and specific information about the skills that workers possess while creating opportunities for young people who have not been successful in formal learning environments or who have not followed traditional paths. Lessons can be drawn from previous efforts to achieve these goals through the development of alternative credentials to document mastery of certain fundamental skills.

SECOND CHANCE CREDENTIALS

The best-known alternative credential is high school equivalency earned through passing the General Educational Development test (GED), although other tests have recently become available in some states.¹⁷ Research has shown that those who earn a high school credential through the GED fare worse in the labor market than those who earn a high school diploma (Heckman and Kautz 2014). Studies have also shown that those who have obtained a high school credential by passing the GED test have cognitive skills equivalent to those students who obtain a regular high school diploma, but that the test signals to employers a lack of the noncognitive or soft skills needed for success in higher education and the labor market (Heckman and Kautz 2012; Heckman and Rubenstein 2001). Further, evidence shows that GED holders face greater academic challenges once they enter college, which can contribute to a failure to graduate and thus worse labor market prospects (Garvey and Grobe 2011).

Recent changes to the GED test—and the newly available alternative tests—have tried to address concerns that the GED does not measure the skills needed for success in college and in the labor market, but it is too early to know whether these changes will improve outcomes for those who earn a high school equivalency by passing the GED or another test. It is possible that, despite intended improvements, written tests may still fail to measure key noncognitive skills and continue to signal to employers the lack of such skills.

CREDENTIALS THAT MEASURE WORK-READINESS SKILLS

Other efforts have been made to develop credentials that better measure the skills that employers seek, including measurements of cognitive and soft skills specific to the workplace. They include the Comprehensive Adult Student Assessment System, National Career Readiness Certificate, and National

Work Readiness Credential. The idea of such tests, which were developed with input from industry, was to develop a better way of signaling to employers the skills held by job seekers. Work-readiness credentials have been adopted by states to address the fact that other industry-recognized credentials (e.g., occupational licenses and degrees) are out of reach for many low-income, low-skilled individuals and because many existing credentials do a poor job of signaling what employers really need (Muller and Beatty 2008; Rey-Alicea and Scott 2007). Some states pushed for the use in programs serving disadvantaged youth, in particular.

A 2007 Jobs for the Future review of work-readiness credentials found the National Career Readiness Certificate to be the most widely used, but the review notes that work-readiness credentials generally appeared to have little traction with employers (Rey-Alicea and Scott 2007). Similarly, a 2014 report that looked at the implementation of the National Work Readiness Credential in New York City, focusing on its use for youth job seekers, found little evidence of traction with employers (Stix 2014). More research is needed to understand the use by employers of these credentials. ACT, Inc., which administers the National Career Readiness Certificate, claims that more than 10,000 employers in 30 states are recognizing this particular work-readiness credential.¹⁸ Some criticisms of work-readiness credentials are that they have not been developed with enough input from employers in the local labor markets where they are used, that they have not been marketed effectively to local employers, that they were not developed and tested for use with youth job seekers in particular, and that such written tests are a poor way of measuring soft skills (Rey-Alicea and Scott 2007; Stix 2014).

LESSONS FOR DIGITAL BADGES

The experience of the GED and various work-readiness credentials is instructive when thinking about how to build badge currency in the labor market. If digital badges are used only as “second chance” credentials to replace traditional credentials for those who have not been successful in school or work, rather than opening up new opportunity, they could unintentionally add to the disadvantages those populations already face. Success may require broader adoption of badges so that badges are earned by young people at all economic levels and of different racial backgrounds, not just by those who have been unsuccessful in traditional academic environments.

At the same time, digital badges may offer the opportunity to measure and communicate soft skills, especially those gained in informal and online learning environments. One positive aspect of efforts to implement work-readiness credentials noted by Rey-Alicea and Scott (2007) is that they can help create a common language and understanding among local employers about the skills needed for work.

Similarly, digital badging efforts can create a common language about workplace-relevant skills that can be built in informal learning environments.

Although soft skills are difficult to document, informal learning environments may provide opportunities for experimentation with different forms of evidence. Programs with mentoring relationships or peer support at their center offer the potential to use third-party recommendations to verify attainment of soft skills. Portfolios may also be used to show completion of team projects or examples of problem solving. It is possible that certain soft skills may be measured through assessment tests.

RECOMMENDATIONS

- Make badges broadly available to all learners in any learning context so that they do not negatively stigmatize earners or signal failure to master certain skills.
- Use badges to document the soft skills demanded by employers that are difficult to identify.
- Use badges to create a common language for communicating soft skills.

Strategies for Building Work Readiness

Workforce development programs use several strategies for building soft skills and work readiness. These include interactive teaching with opportunities for reflection and feedback, classroom simulations of the work environment, and actual work experience opportunities (DOL 2010). First, we discuss classroom-based approaches to building soft skills and then discuss work experience opportunities, which can be used to build both hard and soft skills.

CLASSROOM-BASED APPROACHES

Much of the learning that happens in workforce development programs occurs in the classroom, where program participants learn both hard and soft skills. The challenge of building soft skills is that behaviors must be practiced and ingrained internally; they can't just be taught. As described in a technical assistance document prepared by the American Institutes of Research for the US Department of Labor, "soft skills are behaviors that must be internalized as a natural aspect of a person's repertoire of social skills and character attributes. Embedding within new workforce entrants the capacity to behave appropriately requires opportunities to experience and practice each new skill until they are well within each worker's comfort zone" (DOL 2010, 1).

Although there is little rigorous research on classroom-based approaches to soft skills development, classroom simulations may be more effective than interactive teaching alone because they aim to mimic the workplace and create an authentic environment in which young people can practice workplace skills. In a guide for workforce programs, Maguire and colleagues (2010) stress the importance of “creating a culture of work,” which can include requiring students to be on time and dress appropriately as well as provide feedback on the use of language or how they interact with their peers. It is believed that through these practices, young people can practice workplace skills in a safe environment and that these behaviors can be internalized.

WORK EXPERIENCE APPROACHES

Another way that young people can build soft skills is through early work experience in entry-level jobs. Many workforce development programs and local workforce systems work to ensure that workers have the skills needed by employers by developing work experience components to their programs. These can include internships or externships, clinical experiences, summer jobs, on-the-job training,¹⁹ and registered apprenticeships.²⁰

Research on the effectiveness of work experience programs is mixed. Registered apprenticeships have shown the strongest positive impacts for participants, with earnings gains of about \$6,000 to \$6,500 per participant per year in a study of apprenticeship programs in 10 states (Reed et al. 2012). The strong effects of apprenticeship programs likely reflect a combination of factors, including that programs are designed by employers with “skin in the game,” that participants earn industry-relevant or industry-required certifications, and that participants can demonstrate experience directly applicable for the jobs for which they are training. In addition, such apprenticeships usually have a strong mentorship component, which has been found to be important in youth programs.

There is also evidence of positive effects from other types of work experience opportunities, although employment effects often fade over time (Roder and Elliot 2014). Summer youth employment programs have been found to have multiple impacts for youth, including avoidance of crime and other negative behaviors and improved academic outcomes (Heller 2013; Sum et al. 2014; Gelber et al. 2014). However, few have shown impacts on employment, and even when positive employment effects have been found, they have not continued beyond the summer of participation. (Gelber et al. 2014; McClanahan et al. 2004).

LESSONS FOR DIGITAL BADGES

Many badging efforts are linked to informal learning opportunities, which can provide rich opportunities to build key work-readiness skills. Digital badges can be used to communicate and document the soft skills developed through these experiences. The nature of many informal and out-of-school time programs, however, may limit badging to certain kinds of soft skills. To engage youth, such programs are often designed to “meet youth where they are.” Spaces are designed for “hanging out” and not to feel like authentic work environments. Young people can drop in and leave as they please with no requirement to arrive on time. Similarly, they are encouraged to come as they are and not to dress in a particular way.

The workplace has become less rigid in many respects and come to reflect norms from different generations and cultures of our diverse society; workers are granted more flexibility and standards for workplace attire have changed in many industries. However, this is not true in all industries. Informal learning environments and experiences that are “youth centered” in various respects may not provide the authentic work environments needed for the development of soft skills demanded in the workplace. How to dress appropriately, deal with a difficult boss, and follow other workplace norms and rules will not be the focus of many badging programs.

However, these informal learning experiences may help youth practice other skills. Using existing inventories of work-readiness skills, program operators can identify which skills align with employer needs and are worthy of badges. Possibilities include the ability to identify problems and solve them creatively, manage projects, and work in teams. Given the difficulty in demonstrating the attainment of such skills, those operating badging programs will need to develop creative strategies for demonstrating such skills.

If the goal is to offer informal learning opportunities that give young people the chance to demonstrate experience, then the length and intensity of programs is also important. Although the research is not conclusive, several authors surmise the reason that positive employment effects are not sustained in summer youth employment and internship programs is because of the short-term nature of such interventions. To meet employer requirements for demonstrated experience, consideration should be paid to the length and intensity of the experiences as well as whether the skills learned align with the skills employers demand.

In addition to helping demonstrate experience and the attainment of hard and soft skills developed in informal learning environments, badges could be assigned to formal work experience opportunities to document skills and competencies. For example, badging frameworks that encompass soft skills and

employability could be used to ensure that young people are learning these skills during work experience programs, such as summer jobs. There may also be opportunities to use badges within existing workforce development programs for youth; as young people progress through training programs of various kinds, they could demonstrate the skills attained through badges. Whether used in work experience or training programs, digital badges offer the advantage of linking evidence of the skills attained for prospective employers.

RECOMMENDATIONS

- Focus on badging for soft skills that can be easily demonstrated in the environments in which they are learned.
- Consider the length and intensity of learning experiences that are designed to build employability skills.
- Identify opportunities to use badges to document learning in work-readiness and other workforce development programs for youth as well as to strengthen program design.

Postsecondary Education Access and Success

In response to underprepared students, dismal graduation rates, increasing diversity of the college-going population, default rates on student debt, and the general perception that US postsecondary institutions are not adequately preparing students for the labor market, several initiatives have attempted to improve postsecondary outcomes. Led by the federal government, states, and philanthropy, these efforts have focused on the implementation of innovations designed to transform public higher education. These include the following innovations relevant to digital badging:

- **Prior learning assessment.** A process of earning college credit for college-level learning acquired from other sources, such as work experience, professional training, military training, or open source learning from the web.²¹
- **Competency-based education.** An approach through which students earn credit based on the assessment of skills and knowledge acquired rather than the time spent in the classroom, and flexibility can be built in to allow students to master content and skills at their own speeds.²²

- **Industry-recognized credentials.** Credentials that are required or desired by companies within an industry when hiring job candidates or that are developed, endorsed, or offered by an industry association representing a large portion of companies in that industry.
- **Accelerated learning.** Models that aim to decrease the time to completion through strategies such as self-paced learning and integrated instruction, where basic skills content and technical skills content are taught simultaneously to avoid requirements that coursework happen sequentially.
- **Stackable credentials.** Part of a sequence of credentials that can be accumulated over time to build up an individual's qualifications and help him or her move along a career pathway or up a career ladder to different and possibly higher-paying jobs.
- **Career pathways.** A model for education and training that involves a coherent, articulated sequence of rigorous academic and career or technical courses, with multiple entry and exit points, supportive services and navigation assistance leading to degrees and industry-recognized credentials. Career pathway systems are developed, implemented, and maintained in partnership among secondary and postsecondary education, business, and employers (Alliance for Quality Career Pathways 2014).

Evidence as to the effects of these new models of learning and assessment in higher education are still emerging. For example, evaluations of the Trade Adjustment Community College and Career Training grants program, which is supporting the implementation of such curricular innovations in colleges across the country, may yield important evidence about which strategies work and for whom in community and technical college settings. Rigorous evaluations are also needed of career pathway programs, which are at the center of several philanthropic efforts and reflected in the newly authorized WIOA. One potential consequence of these efforts may be an increasingly complex educational landscape in which the number of credentials that employers and students must navigate has proliferated (Austin et al. 2012; Carnevale et al. 2012; Ganz-Glass and Good 2014).

LESSONS FOR DIGITAL BADGES

Digital badging proponents enter a postsecondary education and training space that is both crowded and confusing to navigate for students, job seekers, and employers. The proliferation of badges in multiple contexts, for varied purposes, and with different frameworks may not only add to the confusion for job seekers and employers but also act as a barrier to building badge currency in higher education and the labor market. At the same time, the postsecondary education and training space is in

a state of change and potentially open to transformation. If the goal of digital badging efforts is to gain currency for digital badges in higher education and with employers, then working with other innovators attempting to transform postsecondary education and training may make the most sense.

Local pilots that involve partnerships with those institutions on the forefront of innovation are a potential first step for building broader recognition and acceptance for digital badges. Pilots can focus on institutions that are leaders in prior-learning assessment, competency-based education, and the adoption of industry-recognized credentials. Such institutions may be more open to partnership but also may have structures in place that facilitate implementation of digital badges. Digital badges could be linked directly to the attainment of competencies in institutions implementing competency-based education programs or as a part of creating stackable credentials. The experiences of implementing these innovations could also inform the strategies for building badge currency.

Badging proponents can also link to other broad efforts, such as Lumina Foundation's Connecting Credentials framework, to develop common standards for credentials so that they better communicate their value to potential consumers of digital badges, such as postsecondary education and employers. A key part of the Lumina effort is to develop common standards with respect to validation and accreditation. Evidence shows that validation by a trusted third party is essential to credentials being valued and recognized by employers.

Badges that lack these elements of rigor may have difficulty gaining traction with employers. Furthermore, the short-term nature and sometimes low intensity of badging programs may make it difficult for employers to find them meaningful unless they are intentionally connected to other learning opportunities and developed in partnership with employers. Shared terms and definitions for all types of credentials may not resonate with youth, just as there are risks of youth-oriented branding not resonating with employers.

RECOMMENDATIONS

- Implement local pilots in partnership with other credentialing reform efforts.
- Recognize the evolving and confusing educational landscape may suggest that digital badges will be more successful if fewer, high quality digital badges are created.
- Join efforts to create common frameworks and language around credentials.
- Design badges that demonstrate skills needed in the labor market by ensuring they consider program length, intensity, validation and accreditation, and language.

Conclusion

With policymakers, funders, practitioners and communities focusing on the challenges facing low-income youth and youth of color in the labor market, many innovative efforts are underway to transform education, credentialing, and hiring. This energy brings opportunity, but lessons from workforce development suggest the need to make sure that badging efforts and programs are strongly linked to industry needs and complementary efforts to improve the ways that credentials are awarded and communicated.

Digital badges are new to workforce development systems. Connections with these systems can start with local efforts to pilot badges in specific industries or with receptive postsecondary institutions. Pilot projects can pave the way for greater recognition of badges as valid representations of skill. Opportunities to link badges with existing work experience and workforce development programs and other learning opportunities may further expand local badge currency. Ensuring that digital badges represent high-quality, verified learning opportunities and that they are earned by a broad cross-section of youth will be key to avoid stigmatization associated with other second-chance credentials.

As digital badges gain traction as a workforce development strategy, it will be essential to continue to document lessons from these efforts and evaluate their effectiveness at improving employment outcomes for youth.

Notes

1. See table A-1, “Employment status of the civilian population by sex and age,” and table A-2, “Employment status of the civilian population by race, sex, and age,” at “Economic News Release: Employment Situation,” Bureau of Labor Statistics, last modified April 1, 2016, <http://www.bls.gov/news.release/empstoc.htm>.
2. See “Table 326.40. Percentage distribution of first-time postsecondary students starting at 2- and 4-year institutions during the 2003–04 academic year, by highest degree attained, enrollment status, and selected characteristics, Spring 2009,” National Center for Education Statistics, Digest of Education Statistics 2014, accessed April 29, 2016, https://nces.ed.gov/programs/digest/d14/tables/dt14_326.40.asp.
3. Peter Cappelli, “On-line Recruiting,” *Harvard Business Review*, March 2001, <http://www.51lunwen.org/UploadFile/org201102261248377666/20110226124837637.pdf>.
4. “Employment Tests and Selection Procedures,” US Equal Employment Opportunity Commission, accessed April 29, 2016, https://www.eeoc.gov/policy/docs/factemployment_procedures.html.
5. MacArthur Foundation, “Digital Media & Learning Competition Provides \$2 Million for Innovations in Digital Badges,” press release, September 15, 2011, accessed April 29, 2016, <https://www.macfound.org/press/press-releases/digital-media-learning-competition-provides-2-million-for-innovations-in-digital-badges/>.
6. Charles Tsai, “The Case for Social Innovation Micro-Credentials,” *Stanford Social Innovation Review*, July 1, 2014, http://ssir.org/articles/entry/the_case_for_social_innovation_micro_credentials.
7. The initial badges were awarded for Community Service, Cross-Cultural Experiences, Entrepreneurial Mindset, Ethics, Intellectual Curiosity, Leadership, Professional Development, and Science and Engineering Research. See University of Michigan, “Employer Information,” Mblem—U-M Digital Badges, accessed April 29, 2016, <http://www.mblem.umich.edu/v/employers>.
8. “Course Badges,” Pennsylvania State University, accessed April 29, 2016, <http://badges.psu.edu/course-badges/>.
9. Pearson, “Pearson’s Open Badge Solution Provides Secure and Easy to Share Proof of Qualifications and Skills,” press release, February 13, 2014, accessed April 29, 2016, <https://www.pearson.com/news/announcements/2014/february/pearson-s-open-badge-solution-provides-secure-and-easy-to-share-proof-of-qualifications-and-skills.html>.
10. BloomBoard for Schools, “BloomBoard and Digital Promise Launch Micro-credential Website to Support Competency-Based Learning for Teachers,” November 10, 2015, accessed April 29, 2016, <http://schools.bloomboard.com/bloomboard-and-digital-promise-launch-micro-credential-website-to-support-competency-based-learning-for-teachers/>.
11. “IBM Open Badge Program,” IBM, accessed April 29, 2016, <https://www-304.ibm.com/services/learning/ites.wss/zz/en?pageType=page&c=K023717Z98079G33>.
12. “Digital Badges”, National Retail Federation, accessed April 29, 2016, <https://nrf.com/career-center/certifications-and-training/digital-badges>.
13. For more information, see “Connecting Credentials,” accessed April 27, 2016, <http://connectingcredentials.org/>.
14. Kara Johnson, “Digital Badge Pilot Encourages STEM Engagement,” *Cityspan*, November 10, 2015, <http://www.cityspan.com/blog/digital-badge-pilot-encourages-STEM-engagement-for-providence-boston-youth>.
15. The phrase “train and pray” is often referenced as a description of the approach taken by many workforce development programs, including the statement of the Honorable Thomas E. Perez, nominee for US Secretary

of Labor, during his confirmation hearing before the Senate Committee on Health, Education, Labor And Pensions (Perez 2013).

16. Under the prior law, the Workforce Investment Act, these oversight bodies were called Workforce Investment Boards.
17. Since 2014, competing tests that have become available include the Test Assessing Secondary Completion and the High School Equivalency Test.
18. ACT, "National Career Readiness Certificate", accessed March 27, 2016, <http://www.act.org/content/act/en/products-and-services/workforce-solutions/act-national-career-readiness-certificate.html>.
19. On-the-job training takes place while the trainee is working at the job site, usually for a wage.
20. Apprenticeships are technical training programs that combined paid on-the-job training and classroom training, often leading to industry certifications and college degrees or certificates.
21. "Prior Learning Assessment," Council for Adult and Experiential Learning, accessed April 29, 2016, <http://www.cael.org/what-we-do/prior-learning-assessment>
22. "What is Competency-Based Education?" Competency-Based Education Network, accessed April 29, 2016, <http://www.cbenetwork.org/competency-based-education/>.

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STATEMENT OF INDEPENDENCE

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