Preface

Across the U.S., many states are embracing the challenge to plan for 65% of all Americans attaining a college degree, certificate, industry certification or other credential by 2030. Policymakers and educators are increasingly interested and are beginning to invest in credentials beyond the standard college degree. Prior to COVID-19, it was predicted that 65% of all jobs would require at least some form of postsecondary training, but not always a degree. Then, COVID-19 changed the world with one-third of those that lost their jobs now requiring more education to hire into new positions (Strada, 2021).

To say the world has changed quickly is a vast understatement. The pandemic has heightened urgency to get the unemployed back to work, fill employment gaps that require more skills than the current workforce has available and attempt to keep up with the changing needs of the future workforce. Prior to the pandemic, the workforce still had significant issues finding talent, but now, the demands for specific jobs have changed with jobs related to caring for people and shipping goods predicted to thrive in the coming years (Deloitte Insights, 2021). This is a significant shift from predictions prior to the pandemic with a long range focus on areas such as artificial intelligence, cybersecurity, manufacturing and the high tech sector overall. The good news is there will be available jobs, many underemployed will go back to work in new roles and require additional education and training to be successful. In service-oriented fields and the lower wage workforce, predictions do not look as promising for recovery.

In addition to unemployment, the skills gap has been increasing, even prior to the pandemic. In 2019, 83% of recruiters were already having difficulty finding a match between job candidates and skills (SHRM, 2019). With the expansion in technology fields, the gap between career ready graduates with skills and credentials to fill jobs is even more clearly evident (BBC, February 2020). As an example, cybersecurity has a specific gap with a predicted 3.5 million jobs available, with unfilled jobs and the skills gap is getting larger in 2021. Many posted jobs require experience, specific knowledge of networks or programming languages and key industry certifications. Most college graduates have the degree, but not the credential or experience to be career ready. According to Deloitte (2021), the skills shortage has gotten worse in the past two years with the pandemic being largely to blame, along with new high wage, high demand jobs that will emerge post-pandemic. And, further, Weise (2021) suggests that more mature workers are remaining in the workforce longer with 48% planning to work beyond the age of 65, as compared to 16% of mature workers in 1991 working longer than age 65.

THE CHALLENGES

To create a future where higher education and employers are working together to meet the skills gap, there are three major areas of challenge:

Higher education is falling farther behind in preparing career ready graduates.
Skills-based hiring is already happening.
Higher education and industry must partner to accelerate short credential-based learning.

Higher Education Falling Further Behind

In the meanwhile, higher education continues to be under fire for students graduating with significant debt and underemployment. Although many colleges and universities are leaning into the idea of aligning degrees to the needs of the workforce, for the most part, institutions have not committed to short learning credentials in mainstream academe. The stakes are significant for higher education with current budget shortfalls coming primarily from enrollment declines of 4% in fall 2020, with the number of first-year students dropping by over 13% (Selingo, Noone, Cole & Wittmayer, 2021). The pandemic has cost colleges over $183 billion in the U.S. alone (Whitford, 2021). And, to add to the issues post-pandemic, the demographic cliff with the number of high school graduates declining is projected to arrive in 2026 with fewer graduates in virtually every graduating class between 2026 and 2037 (Bransberger, Falkenstern & Lane, December 2020). As the value of a university degree plummets (Selingo, 2017), the popularity of the digital microcredential continues to rise. Post-pandemic, this remains true.

In a recent survey of college graduates, only about one-third expect their university learning experience will prepare them for success in the workplace. Further, this study reveals the misalignment of designated roles/jobs and workplace competencies (BCG, 2020). With all that is happening, the value of a college degree is changing and those external to higher education are moving aggressively to fill the gaps. New initiatives including edX MicroBachelors have emerged strong throughout the pandemic year. edX MicroBachelors programs deliver immediately transferable skills to meet the real-world needs of employers, while providing a pathway to a full bachelor's degree. Over 35 million students are turning to the edX short course options to achieve stackable credentials that may lead to academic credit, but, more importantly, provides a credential that students can add to their resumes and expand their knowledge for the future of work. According to Agarwal in a report from Johnson Hess (2021), eleven percent of those selecting edX were unemployed or furloughed during the pandemic and were trying to learn new skills that will make them competitive for new jobs.

Following a similar growth trajectory, Coursera grew by 387 percent during the pandemic, with 8 million users in 2019 to over 31 million users of MOOC courses in 2020. For all short course and degree type programs, Coursera serves over 76 million users (Dhawal, 2020).

At the same time, the Georgetown University Center on Education and the Workforce reports that one in ten undergraduates are working only toward a certificate and the numbers are increasing for those pursuing certificates or associate's degrees and decreasing numbers are seen for those working toward a bachelor's degree. This trend is worth noting and likely will be another factor in reduced college enrollments for the future.

Skills-Based Hiring

There is undeniably competition outside of the higher education landscape. The number of employers hiring based on skills rather than educational degrees has grown out of necessity. Many believe this supports the expansion of overall pools of diverse candidates. Companies including Google, Hilton Hotels, Ernst & Young and IBM have made this change and report increases in new hires without college degrees. Google now offers "career certificates" that can be completed through Coursera for a low cost. This form of microcredentialing from high tech companies offers the most needed knowledge and skills to perform at Google. It is an exceptional example of how a college degree may be disrupted through microcredentialing. This example clearly provides the focus on skills attainment rather than academic degrees. The focus on skill-based hiring continues to gain support as the skills gap grows. And, it is faster and less expensive that a college degree. As a result of this emerging disruption, partnerships between higher education institutions and companies seeking to remedy the skills gap by providing industry-specific, skill-, and competency-based microcredentials are expanding (Salin, 2019).

With microcredentials on the upswing and many high-profile companies no longer requiring applicants to have a college degree (Glassdoor, 2020), the college diploma is beginning to lose its 'currency' as the ticket into the professional workforce. The popularity of the microcredential is being fueled in large part by major companies such as IBM, Google, and Amazon who are trying to grow their talent pipeline and increase the skill level of current employees (deLaski, 2019).

Higher Education and Industry Collaboration

Clearly, what got us here won't get us there as it appears that most everyone is missing the mark. Both employers and higher education are having a difficult time preparing for a future that is already here. There is still a lack of common language around skills, funding has been reduced everywhere and workers are staying in the workforce much longer (Weise, 2021). As we have moved through the pandemic, innovation is accelerating and microcredentials appear to be a solution supporting connecting career ready, skills-based education with the future of work.

As workforce needs continue to develop, resulting in the need to upskill and re-skill, microcredentials will play a key role. Prior to the economic downturn of the pandemic, more than $2.5 trillion was spent on postsecondary education and workforce training. An estimated $10 billion was spent on microcredentialing programs. Significant growth is happening now with microcredentials and it is predicted that the market with double in the next 3-5 years (HolonIQ, 2021).

This significant growth of microcredentials is gaining interest in higher education institutions while contemplating the relationships between credit and noncredit programs and rethinking if, and how, to modify the curriculum model. Higher education institutions and employers are also studying how to promote lifelong learning while considering multiple entry and exit points for learning and retraining. Much work is being done to build consistency in stacking credentials to include certificates, badges, industry certifications and degrees throughout an entire career (Heckstall, n.d.). With employees predicted to change jobs at least twelve times throughout a career, this open loop process will become a lifeline for student success. The open loop process may also provide pathways for students who do not pursue traditional two and four year degrees but instead focus on skill building (Weise, 2021).

Higher education institutions who are willing to partner with industry to build relevant training in soft skills, industry-specific needs and advanced IT/technical skills can make a difference. Institutions

developing short courses tying specifically to skills gaps will be in high demand. Continuing education units have been offering industry training for years, but not always with the full weight of the campus community or potential academic credit. Microcredentials, relevant certificates, boot camps and industry certifications that can be articulated to academic credit in key degree programs create a competitive advantage for institutions while providing support for the skills gap. Whether it's educating a new graduate with skills required in the workplace to make the candidate a valued fit, or reskilling the workforce for the future, citizens who can verify targeted skills through badging will meet critical workforce shortages and provide clear value to both employee and employer.

Several higher education institutions are making progress toward offering skill-based credentials at scale while others are just beginning. Innovative approaches being used within higher education include competency-based education, microcredentials with stacking and badging, partnerships at the "MicroBachelors" level, certificate first and "credegrees" that partner a traditional degree with recognized industry certifications. Regardless of the approach, targeted, skills based, verifiable credentials can make graduates more marketable. These innovative approaches include:

Southern New Hampshire University, in the College for America program, offers programs with job-related, "competencies" (skills) side by side with employers and demonstrate competence 100% through projects.

Louisiana State University's "MicroCred" Continuing Education program is designed for individuals who want to gain a new set of skills to immediately apply in the workplace. Each course is fully online and some can be completed as quickly as four weeks. LSU offers digital badges for successful completion and academic credit is available. One of the most recent career-focused programs is the Introduction to Construction Management designed as fully stackable with a pathway allowing students to take everything from short courses through graduate degrees.

The SUNY system offers microcredentials complete with guiding principles, definitions and overall direction to provide graduates with more than a college degree, with verifiable skills and competencies specific to hiring needs.

Western Governors University's IT MicroBachelor's degree in partnership with edX launched in 2020 with enrollment that has more than doubled since the start of the pandemic, from 4,410 in March 2020 to 10,711 in May 2020 representing a targeted demand for IT.

BYU-Pathway Worldwide and BYU-Idaho offers redesigned degree programs where certificates are sub-components of a degree. It supports a critical role for students to both boost earnings and complete a degree.

Kaplan University is launching "Credegrees" to support students graduating with a traditional degree and an industry-recognized skill or credential delivered online, that support job qualifications.

The time for higher education institutions to innovative and move is now. According to John Farrar, director of education at Google, "COVID-19 has propelled institutions to remove inertia, accelerating their ability to innovate and experiment. Credential stacking will be the currency of the future for lifelong learners. This is a first mover advantage, and you have all the tools in your toolbox to capitalize on it." (BCG, 2020).

SEARCHING FOR A SOLUTION

Microcredentials Supporting Career Ready Education

Although there are still slightly different interpretations and definitions of what microcredentials are, the concept has emerged primarily in response to the skills gaps caused by rapidly changing work dynamics, skill requirements and new technologies. Microcredentials are generally offered in shorter and more flexible timespans as byte-sized 'chunks' of narrowly focused skills and competencies. There are several options of what might be considered as the spectrum of possible strategies to deliver these narrowly focused skills and competencies to include: short courses and badges, bootcamps, professional certificates and licenses, non-university issued non-degree certificates, university-issued non-degree certificates and certifications (HolonIQ, 2021).

When microcredentials are aggregated, grouped or stacked, learners have more flexibility and can build individual selections of microcredentials into larger and more recognizable credentials. For example, machine learning and natural language processing microcredentials could be stacked into a larger credential on artificial intelligence. With more verifiable skills-based knowledge, individuals create a more direct pathway to better jobs that are clearly aligned to skills employers are seeking. This strategy also supports employees advancing within existing jobs. When working with higher education institutions that either develop microcredentials or accept them into degree programs, this stackable approach provides verifiable skills and moves students closer to a degree.

Microcredentials are different than traditional degree programs, yet need to operate on the same recognition with the intent of creating verifiable skills to meet the skills gap. Outside of higher education, microcredentials may be verified through digital badges and corporate recognition. The value a university can leverage is the award of credit. This can be accomplished in a similar manner that a certificate developed within a university may award academic credit. Course credit can be applied to a degree program, yet many students will only initially seek the credential, not the degree, especially for adults who are uncomfortable pursuing a full college degree. And, at that moment, adults typically are interested exclusively in the short, targeted credential. Although microcredentials are already in use to broaden skillsets, in the future, students may be able to stack a series of credentials together instead of attaining a university degree. With job announcements in Google, Amazon and other large companies already posting that college degrees are no longer needed, verified skills, not degrees in some fields will become a standard for employment.

The advantage of targeted skills attainment, compressed time to complete, flexibility and relevance to the career, make microcredentials a preferred strategy for human resource officers who are managing companywide organizational strategies for upskilling existing employees. With a full portfolio of microcredentials, this model can serve as a continuous learning strategy to boost skills and employee retention. This promise of a faster return on investment for training is also valued (D'Orio, 2019; LinkedIn Learning, 2018)

Even with this rapid expansion of skills-based microcredentials both within and outside of higher education, university degrees remain highly significant for employment and are valued across industries. According to Gallagher (2018), a survey of 750 human resource leaders in U.S. companies found that more organizations are moving toward skills-based hiring with many applicants holding college degrees and microcredentials to verify and supplement the degree. In a majority of cases, it appears that it is more of a post-baccalaureate move, closer to a 'mini-masters.'

Overall, we are moving into a dizzying future with a need to have economic recovery that not only resets the economy to pre-pandemic levels, but also focus on what jobs and skills will drive the recovery. It is likely that traditional and fundamental patterns of work will never be the same and will require us to think forward, not backward (Burning Glass, 2021). It is imperative in the post-pandemic labor market that we build fundamental new ways to achieve skills to reduce the talent shortage and move the economy forward. It will take industry, academia, policymakers and learners working together to manage the future of work and the future of learning.

Higher education has been viewed as the golden ticket for getting a good job and succeeding for a lifetime of work. More recently, even traditionally aged students who attend college are leaving with extraordinary debt and many are not moving into anticipated jobs. While at the same time, adult learners are continuing to increase as the dominant college student in the U.S. As we pause, at this very historic moment, while pushing through to a post-pandemic workforce, it is time to consider targeted ecosystems of learning, with learning experiences that are clearly aligned with the needs of the workforce, providing technical and professional skills to create career ready graduates. Considerations for targeted measures of success include new pathways to include MicroCredentials, experiential learning, prior learning assessments, aligned recognized industry certifications and competency-based education. Recognizing that an adult may change jobs 12 times throughout a career, these short, targeted credentials become more accessible throughout a learner's career. This book will focus on creating career ready education through future of learning while targeting the future of work.

ORGANIZATION OF THIS BOOK

This book is organized into 16 chapters focusing on microcredentials, experiential learning, prior learning assessment and competency-based education. A brief description of each chapter follows:

Chapter 1 focuses on additional ways to equip Oklahoma college students, particularly those students with some college and no degree, with the necessary professional capital to compete for these jobs.

Chapter 2 discusses how micro-credentials have the potential to ready learners for the future of work while providing a deeply relevant, learner-centered experience.

Chapter 3 focuses on re-engaging adult learners in Louisiana and create equitable academic pathways to obtaining a college degree.

Chapter 4 focuses on establishing protocols around more complex initiatives such as portfolio-based assessments and disciplinary or subject related challenge exams for the successful implementation of a PLA Program.

Chapter 5 discusses the challenges and opportunities of graduate level professional development experiences in remote and hybrid contexts for experiential programs.

Chapter 6 provides context for the design of an experiential, service-learning-based capstone course that provides students with meaningful service-based learning experiences.

Chapter 7 provides new perspectives on expanded models of competency-based education for academic and workplace credentials as a frontier ecosystem in education.

Chapter 8 explores the nature of PLA and its evolution into the mainstream of higher education policy and practice.

Chapter 9 explores how a statewide degree completion initiative advances prior learning assessment as a way for students to demonstrate competence using alternative strategies to earn credit

Chapter 10 describe how to apply a continuous improvement process over time to modify an online, competency-based alternative teacher certification program to better meet student needs.

Chapter 11 focuses on how to transition a traditional Engineering Technology Associate in Science degree program to a hybrid competency-based (CBE), modular, non-term, self-paced, learner-centered, faculty-mentored format.

Chapter 12 highlights full-scale implementation and major lessons learned in collaboration with Competency-Based Education Network (C-BEN) for future CBE implementations focusing on institution-wide scale ups.

Chapter 13 discusses guidance offered through standards, guidelines, and best practices, competency-based courses and programs that can meet the needs of students to demonstrate competence in course and program content.

Chapter 14 encourages the expansion of research in postsecondary competency-based education (CBE) by providing specific directions for further study and outlining paths for other researchers, practitioners, and policymakers alike to inform useful research.

Chapter 15 describes the substantial amount of experimentation that was conducted at a large institution to uncover insights relating to technology, faculty roles, curriculum, policy, and most importantly, the student experience in CBE.

Chapter 16 explores the ways that the credit hour and competency might be re-imagined to respond to needs of stakeholders (e.g., nontraditional students, employers, policy makers, etc.) and the workplace as opportunities to include both credit and competency in describing individual potential for career progression.

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