STATE AUTHORIZATION FOR SHORT-TERM CAREER-ORIENTED CREDENTIALS: EVIDENCE FROM FIVE STATES

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ABSTRACT

While career and technical schools have offered short-term credential programs for more than a century, a proliferation of new digital badges, bootcamps, and other so-called micro-credentials have emerged in the past decade. A 2021 Credential Engine report identified approximately 550,000 short-term credentials offered by non-academic organizations. These new programs target adults seeking a streamlined path to in-demand jobs.

How states envision their regulatory role in this authorization space remains largely understudied. Using a qualitative, multiple-case design, we provide an overview of how California, Georgia, Illinois, New York, and Washington regulate these entities. Our study combines analysis of key legislative and policy documents and semi-structured interviews with 22 leaders from 14 distinct agencies/organizations, including representatives from authorization agencies, other public higher education system offices, and private organizations (e.g., boot camp providers, a digital badge platform provider).

We present our results in four sections. The first section focuses on the mechanics of the authorization process, including the indicators used to evaluate institutional quality. The second section focuses on consumer protection mechanisms and responses to non-compliance. Next, while parts of the authorization process differ across our five states, we discuss several shared challenges, including budget and resources; interagency communications; institutions' responsiveness and knowledge of the authorization process; verifying self-reported data; and current systems and infrastructure. Finally, we discuss four overarching themes pertaining to the short-term credential landscape that emerged from our interviews. We highlight the data needed to evaluate credential quality; the balance between providers' autonomy and state regulation; the tension between viewing short-term credentials as businesses versus educational institutions; and the disruption and opportunities the COVID-19 pandemic presents to the industry.

While we identify challenges with the adoption and implementation of state-level regulatory policy for the short-term credential industry, we also suggest ways to leverage state policy to address these challenges. We offer recommendations for state authorizing agencies, including: collecting and publishing outcome data on all postsecondary offerings in the state; developing a registry of quality non-degree credentials; identifying the organizational bottlenecks causing delays in the authorization process; and encouraging accredited postsecondary institutions to explore the application of stackable credentials toward an associate or bachelor's degree. In light of our findings, we recommend policymakers legislate the development of a state longitudinal data system, restructure Pell Grant programs and state-based financial aid to support non-degree skills training, and incentivize institutions to forge relationships with employers. We conclude with recommendations for research, including identifying the economic payoffs of non-degree educational credentials and the outcomes of students that pursue these paths,

exploring whether short-term educational offerings open access to public state higher education systems, and understanding how short-term educational programs promote or inhibit equity in postsecondary education.

INTRODUCTION

The knowledge economy of the past decade has seen the proliferation of career-oriented postsecondary educational offerings such as badges, boot camps, and other micro-credentials. These efforts target adults seeking a quick, structured path to in-demand jobs, and typically involve technology-based mechanisms for delivering instruction (Kelly & DeSchryver, 2015). Participants in these programs can earn a digital certificate, indicating competency in a specific skill set following the completion of an online course or set of courses, typically ranging from a week to several months (National Education Association, 2018). Graduates of these programs present these certificates to employers and/or share them on social media in an effort to bolster their job qualifications (Arbeit, Bentz, Cataldi, & Sanders, 2019).

Growing numbers of students are enrolling in non-traditional educational programs (Brown & Kurzweil, 2017; Fong et al., 2016; Inside Higher Ed, 2020). The rapid expansion of alternative credentials has led to a staggering number of programs. A 2021 report from the nonprofit Credential Engine identified 549,712 credentials offered from non-academic organizations, including digital badges and online course-completion certificates, with 9,390 additional credentials granted by MOOC (Massive Open Online Course) providers. With an average tuition price of around $13,000, the 2019 revenue from coding bootcamps alone is estimated at $309 million (Eggleston, 2019). As the demand for data professionals continues to rise (Inside Higher Ed, 2020), bootcamps and similar micro-credentialing programs will undoubtedly expand to meet market demands. These programs do not issue formal associate's or bachelor's degrees, cannot accept federal financial aid, and are not overseen by the U.S. Department of Education.

Practitioners and researchers offer several, complementary definitions of alternative credentials. Fong and colleagues (2016; p. 1) define alternative credentials in terms of their utility: "Competencies, skills, and learning outcomes derived from assessment-based, non-degree activities and align to specific, timely needs in the workforce." The OECD's definition includes terms of credential oversight in the definition. More specifically, a 2020 OECD report defined alternative credentials as "credentials that are not recognised as stand-alone formal educational qualifications by relevant national education authorities" (Kato et al., 2020, p. 8). While enrollment in these programs has increased sharply in the past five years, the majority of these programs do not require accreditation from a postsecondary regional accreditation board. Therefore, any regulatory action is currently the responsibility of the 38 states

in which they currently operate. State lawmakers have struggled with determining how to regulate these new offerings without stifling innovation, given that traditional forms of state authorization were designed for brick-and-mortar programs, and not specifically for programs focused on job training (Kelly & DeSchryver, 2015).

Regulatory critics may assert that oversight for alternative programs is not as imperative as regulating degree-granting colleges, given the substantial financial investment students and taxpayers make to attend and operate degree-granting colleges. In a capitalist, free market, economic theory suggests that if anyone can begin offering alternative credentials, then anyone will. Yet, there is no guarantee that these new entrants to the market will have the ability to deliver on their promises, especially as some for-profit educational entities have been shown to target vulnerable populations (NPR, 2017). Exploring some degree of oversight into this sector is critical.

There have been recent efforts to develop quality standards for short-term credential programs. For example, UPCEA (2020) has developed a list of eight pillars of excellence for alternative credentials: advocacy and leadership within the university; entrepreneurial initiative; university-to-business stakeholder engagement; the faculty experience; the learner experience; digital technology; external advocacy and leadership beyond the university; and professionalism. Importantly, all authors of the report with the exception of the Credly digital badge platform provider were representatives of degree-granting public and private universities. Therefore, their guidelines were not necessarily developed with private career schools in mind.

Iron Yard and General Assembly, two popular coding academies, have both worked through the regulatory process in multiple states, with the process varying widely by state (Fain, 2015). However, inconsistency in regulation, particularly across states, can be a significant barrier to innovation in accelerated programs (Kelly & DeSchryver, 2015). At the end of the Obama administration, the Department of Education appeared to be taking concrete steps toward the development of a standard set of quality assurance questions related to student outcomes in order to distinguish high-quality programs from low-quality programs. However, still today, each state authorizes their private career-oriented programs differently.

In an effort to understand how states currently do or do not regulate these entities and how they envision their role in regulating non-degree educational credentials, this report describes the authorizing process of five states: California, Georgia, Illinois, New York, and Washington. All of these five states that have previously taken legislative action toward regulating short-term, career-oriented credential programs. The goal of this research is to provide policy-relevant information to other states that are interested in further developing their policies around non-degree, private educational program regulation. We address the following four research questions:

RQ1. What is the process for regulating non-degree educational credential programs in each of the five states?

RQ2. What mechanisms do state authorizing agencies utilize to ensure compliance with state regulations and protect consumers?

RQ3. What challenges do state authorizing agencies encounter in relation to regulating non-degree educational credential programs?

RQ4. What broader considerations should policymakers take into account with respect to non-degree educational credential programs?

In all five states, state legislation outlines the procedures for regulating emerging educational offerings and the process for authorization. After interviewing 22 participants from 14 distinct agencies/organizations in the five states (or cross-state organizations), we conduct a cross case study analysis of the regulatory approval process, including how state leaders conceive of protecting the financial interests of their residents and how they ensure private non-degree providers can continue to operate as sustainable businesses in their state. In conversation with state leaders, we discussed the changing landscape of alternative credential programs, the indicators used in the authorization process, issues of non-compliance and the appropriate response, and consumer protection mechanisms. We find that while parts of the authorization process differ across our sample states, several shared challenges remain. The primary challenges for state authorizing agencies include:

- Limited budgets and resources, including human resources, to conduct an authorization review or renewal;
- Institutions' response time when asked to provide information and, at times, their limited knowledge of the authorization process;
- Difficulty assessing the quality of institutions' self-reported data;
- Old or outdated data reporting systems

We next outline four emerging themes pertaining to the alternative, short-term credential landscape overall. Specifically, we highlight the need for clear criteria to evaluate credential quality, the challenge of balancing state regulation with providers' autonomy, the tension between viewing short-term credentials as businesses or as educational institutions, and the disruption and opportunities the COVID-19 pandemic presents to the industry. We conclude with recommendations for state authorizing agencies, policymakers, and future research.

Defining short-term career-oriented programs

The programs we examine in this report are non-degree-granting career- and technical-oriented programs, typically offering programs one year or less in duration. These types of programs are commonly referred to as "alternative credentials" in the

literature, and defined as: "Competencies, skills, and learning outcomes derived from assessment-based, non-degree activities and align to specific, timely needs in the workforce" (Fong et al., 2016, p. 1). Short-term career-oriented programs have been a part of the postsecondary landscape for more than a century, focusing primarily on occupational training and job-oriented skills. The career-oriented programs of today include certificate programs; work-based training; skills-based short courses; MOOCs; and competency-based education programs (Brown & Kurzweil, 2017).[1] Programs are offered in a diverse range of fields including: auto mechanics; aviation; business; computer science and information technology; construction; cosmetology; electronics; health care; hospitality; manufacturing; and public safety (Brown & Kurzweil, 2017; Inside Higher Education, 2020)

In addition to the diversity of fields of study, these programs vary in format. A recent RTI International report classified accelerated vocational training programs into five categories: comprehensive career preparation programs; stand-alone courses; university-affiliated non-credit, unaccredited programs; fellowship programs offering free tuition for admitted students; and postsecondary education replacement programs offering full-time programs longer than one year (Arbeit, Bentz, Cataldi and Sanders 2019). These offerings could include anything from a short weekend continuing education workshop to a full semester-long course to programs lasting a year or longer (Brown & Kurzweil, 2017; Kelly & DeSchryver, 2015). The institutions offering these programs include anywhere from small institutions enrolling 20-50 students, to larger schools with multiple satellite locations, to schools owned by a larger company that itself is owned by a holding company, educating thousands of students.[2]

Given their short-term nature, the terms "nano-degrees" or "micro-credentials" have been used to describe the credential one receives upon completion of a program (Brown & Kurzweil, 2017; Gallagher, 2018). While most traditional higher education institutions use the terms "certificate" or "diploma," we use the term "credential" to describe educational programs that are intended to convey a particular skill set that students should have upon completing the program. It could be a certificate, a diploma, a degree, a badge, a license, a certification, an apprenticeship, or a certificate of completion. We observe that different states, and even local regions, use different terms. The definition of a "badge" in one place may be the same as a "micro-credential"

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[1] While some have compared the rise in short-term educational offerings to Massive Open Online Courses (MOOCs), this comparison might oversimplify the diversity of offerings and providers in the "alternative credential" landscape. While certain types of short-term educational offerings, such as coding bootcamps, are relatively new, many short-term programs, such as truck driving and cosmetology programs have existed for decades.

[2] The average institution authorized in the five states in this study had an enrollment of under 100 students per year.

in another; or these terms could carry different meanings. Terms like "micro-credential" may just be new names for something a state or institution had been offering for years.

A short-term, career-oriented credential has a narrow focus on career training without a general or liberal arts focus (Kelly & DeSchryver, 2015; van der Hijden, 2019). These credentials may be offered in state or private four-year colleges/universities (Brown & Kurzweil, 2017), but most are offered by outside providers as stand-alone programs. Businesses may encourage their employees to complete micro-credentials for professional advancement and that could stack to degrees, meaning they can be combined to move a student toward the completion of a degree or certificate, depending on how much general education is added (Inside Higher Ed, 2020). For students wishing to use these short-term career-oriented courses toward an associate's or bachelor's degree, these credentials can be embedded within their degree program or completed alongside it.

Target population

A micro-credential can be used to serve many different audiences, including students in an existing degree program, people who are interested in entering a new industry, alumni, and others. Students in these programs are not typically those coming directly from high school. Many are career changers, who often have some postsecondary education, who find themselves unemployed, or are looking for a change to something different (Inside Higher Ed, 2020). In their study of online bootcamps, SwitchUp, a web company that compares bootcamps for prospective students, found that men comprised the majority of bootcamp graduates (59%), and the average age of the graduates was 30.6. Approximately 80% of bootcamp students held a bachelor's degree, and only 4% had completed no college (SwitchUp 2018).

For traditional colleges that may struggle to effectively meet the needs of non-traditional students, short-term credentials offer a new type of educational product typically closely aligned with the job market and more accommodating to the needs of adult learners (Brown & Kurzweil, 2017; Inside Higher Ed, 2020). Career and technical education provides students with other options outside of the traditional two-year and four-year degree. Indeed, these short-term programs often appeal to people who have not considered college in years, or perhaps ever, and who may lack the confidence to start or go back. In these cases, the opportunity to enroll in a course without the need to complete a full degree program is a welcome alternative to traditional higher education. An appealing aspect of micro-credentials is that students can step away from them much more easily than they can with full degree programs. Micro-credentials should be, in theory, nimble enough to evolve with the changing

labor market, as they allow people to customize their learning to their current or future work situation.

Partnerships with traditionally accredited colleges and universities

While career and technical institutions historically operated as stand-alone educational institutions, the field is now seeing new partnerships between providers and traditional two-year and four-year colleges through articulation agreements or other contracts (Brown & Kurzweil, 2017). Some agreements are less formal, and simply include bringing in faculty from a for-profit bootcamp, for example, to run a similar program at a public technical school. Technical schools also partner with coding academies to adopt credentials that are even more "micro" than their certificate programs. In these cases, micro-credentials are not designed to replace traditional academic majors, but rather, provide complementary skill sets to help position undergraduate students as more competitive applicants in the job market.

For-profit providers may license their curriculum to individual schools to supplement their curriculum (Inside Higher Ed, 2020). For instance, a coding bootcamp might provide specialized instruction in advanced coding skills, which the faculty at the accredited two-year or four-year institution might not have. Typically, these lessons are not included in the formal curriculum, but may provide elements of a course or a module, such as a short training on how to code in HTML. With these partnerships, students at a traditional, accredited college may earn badges or other credentials automatically upon completion of pre-determined milestones. These credentials can then serve as evidence to employers as to what skills the student has acquired.

Partnerships between for-profit educational providers and accredited colleges can also facilitate better relationships between accredited colleges and business/industry (Inside Higher Ed, 2020). Businesses may be more likely to approach traditional colleges in search of continuing education for their employees if they learn these institutions have collaborated with for-profit providers in the past. Anecdotally, during our interviews, we learned of a local casino approaching a community college to develop a culinary arts micro-credential for dining employees at the casino. The micro-credential included credit-bearing courses students could later apply toward a degree. Another example of this type of partnership occurred in Washington, when a private university collaborated with the telecommunications company, Verizon, to offer a co-branded badge in Professional Retail Sales & Management and Call Center Operations & Management.

RESEARCH METHODS

Overview

Using a combination of interviews and document analysis, we employ a multiple-case design (Yin, 2009) to obtain an in-depth understanding of how five states regulate short-term career training programs offered by private entities. Conducting research on multiple states provides insight regarding the extent to which findings from a particular state might be unique or generalize across states. In order to assess the challenges of regulating short-term, alternative degree programs, we conducted semi-structured interviews with 22 leaders from 14 distinct agencies/organizations. We also asked participants about their general perceptions of alternative, short-term credentials, and discussed the ways in which micro-credentials were affecting the field of higher education. We also reviewed authorization agency websites and legislative policy documents.

State Selection

We focus on the authorization process in five states: California, Georgia, Illinois, New York, and Washington. Each state serves as our primary unit of analysis or "case." These states have all taken legislative action toward regulating short-term, career-oriented credential programs. In each state, there is a primary agency responsible for authorizing non-degree, private career schools. Across these five states, these offices include the Bureau of Private Postsecondary Education (BPPE) in California, the Nonpublic Postsecondary Education Commission (GNPEC) in Georgia, the Illinois Board of Higher Education (IBHE), the Bureau of Proprietary School Supervision (BPSS) in New York, and the Workforce Training and Education Coordinating Board (WTB) in Washington.

Table 1 presents agency information, as well as descriptive data on the higher education landscape in each of the five states. For example, in California, the primary authorizing agency is the Bureau for Private and Postsecondary Education (BPPE). The public institutions in California are overseen by the University of California (UC), the California State University (CSU), and the California Community Colleges systems. In Georgia, the authorizing agency is the Georgia Nonpublic Postsecondary Education Commission (GNPEC), and the public colleges are overseen by the University System of Georgia and the Technical College System of Georgia.

State legislation guiding the approval and regulation process for private short-term career programs varies across states. *Table 1* highlights the primary legislative documents governing the approval and renewal process for institutions seeking to operate in each of the five states. California established the Private Postsecondary Education Act in 2009, which created the California Bureau for Private Postsecondary Education as a unit of the California Department of Consumer Affairs in order to

regulate private postsecondary educational institutions. The passage of Senate Bill No. 1192 in 2016 revised parts of the original law. Georgia's approval process originated with the Nonpublic Postsecondary Educational Institutions Act of 1990. Illinois adopted its legislation, Chapter II: Board of Higher Education, Part 1095: Private Business and Vocational Schools, in 2012 and later amended these rules in 2017. New York's policies are governed by Article 101 of the NY State Education Law, Sections 5001- 5010, approved in 2012, and Part 126 of the Regulations if the Commissioner. Finally, Washington's regulatory process is outlined in Chapter 28C.10: Private Vocational Schools from 1986, and Chapter 490-105: Regulation of Private Vocational Schools, effective in 1998 and later revised in 2015.

The five states in our study varied in terms of their overall state population. The population of the five states ranged from 7.4 million in Washington to 39.5 million in California. New York reports the highest proportion of adults with a bachelor's degree or higher (36.2%), while Georgia reports the lowest proportion (30.9%). The higher education system in each of the five states differed in terms of the number of postsecondary institutions, the number of students enrolled in these institutions, and the number of students awarded associate or bachelor's degrees. Not surprisingly, given the size of its population, California has the largest number of institutions, with 108 public or private nonprofit two-year institutions and 192 public or private nonprofit four-year institutions. In comparison, Washington has 12 public or private nonprofit two-year institutions and 56 public or private nonprofit four-year institutions.

Although not shown in *Table 1*, the most common fields of study for short-term career-oriented programs across the five states include: healthcare and allied health, such as medical assisting, patient care, pharmacy services, and home health care; computer technology, programming, data science, data analytics, cybersecurity, and other computer related fields; business management, entrepreneurial leadership, and real estate; cosmetology and massage therapy; trades, such as heating, ventilation, air conditioning, welding, automotive, refrigeration, and construction; trucking; and culinary services.

Table 1: Higher Education Landscape by State

	California	Georgia	Illinois	New York	Washington
Primary Authorizing Agency	California Bureau for Private and Post-Secondary Education	Georgia Nonpublic Postsecondary Education Commission	Illinois Board of Higher Education (IBHE)	Bureau of Proprietary School Supervision	Workforce Training & Education Coordinating Board
Other State Higher Education Agencies/ Systems	University of California; California State University; California Community Colleges	University System of Georgia; Technical College System of Georgia	Illinois Community College Board; University of Illinois System	CUNY; SUNY; University of the State of New York	WA Student Achievement Council; State Board for Community and Technical Colleges
State Legislation Guiding the Approval Process	Private Postsecondary Education Act of 2009; Senate Bill No. 1192, Chapter 593 (2016); California Code of Regulations: Division 7.5	Georgia Code Section 20.3.250 (also known as the Nonpublic Postsecondary Educational Institutions Act of 1990)	Title 23: Education and Cultural Resources, Subtitle A: Education, Chapter II: Board of Higher Education, Part 1095, Private Business and Vocational Schools (2012, amended 2017).	Article 101 of the NY State Education Law, Sections 5001- 5010 (2012); Part 126 of the Commissioner's Regulation	Chapter 28C.10 RCW Private Vocational Schools (1986); Chapter 490-105 Regulation of Private Vocational Schools (1998/2015)
Private Career and Technical Schools in 2020	1,018 main locations excluding branch and satellite locations	234 schools	250 main campuses and 83 extension sites	Approx. 375-400 non-degree granting schools	Approx. 300 schools
Population 2017 [a]	39,537,000	10,429,000	12,802,000	19,849,000	7,406,000
% Adults w/ BA Degree 2017 [b]	33.7%	30.9%	34.4%	36.2%	35.6%

	California Public	California Private Nonprofit	Georgia Public	Georgia Private Nonprofit	Illinois Public	Illinois Private Nonprofit	New York Public	New York Private Nonprofit	Washington Public	Washington Private Nonprofit
Institutions (2017-18)										
2-year [c]	102	6	23	4	48	3	36	13	8	4
4-year [c]	49	143	29	36	12	80	43	173	35	21
Student Enrollment (Fall 2017)										
2-year [d]	1,242,605	1,497	114,131	1,763	293,411	421	296,487	2,696	36,020	1,388
4-year [d]	1,014,651	307,742	314,455	77,092	184,631	214,829	400,971	521,931	282,316	41,472
Degrees Awarded (2017-18)										
AA [e]	159,087	1,980	16,581	869	34,422	942	52,244	6,932	30,385	119
BA [e]	160,876	40,715	39,776	10,318	32,948	31,243	66,533	70,921	26,990	6,954

[a] Source: Snyder, T.D., de Brey, C., & Dillow, S.A. (2019a). Table 101.40. Estimated total and school-age resident populations, by state: Selected years, 1970 through 2017. In Digest of education statistics 2018 (NCES 2020-009). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education.
[b] Source: Snyder, T.D., de Brey, C., & Dillow, S.A. (2019b). Table 104.80. [c] Source: Snyder, T.D., de Brey, C., & Dillow, S.A. (2019c). Table 317.20.
[d] Source: Snyder, T.D., de Brey, C., & Dillow, S.A. (2019d). Table 304.60. [e] Source: Snyder, T.D., de Brey, C., & Dillow, S.A. (2019e). Table 319.10.

Interview Participants

Our study included 22 participants from 14 distinct agencies/organizations. Participants were leaders at their respective organizations. Eleven agencies were state agencies, while three were private organizations. The state agencies included offices specifically charged with overseeing private career schools, while others were state agencies or institutions responsible for overseeing the development of micro-credentials, digital badges, or other alternative programs at public, degree-granting institutions. The private organizations included one bootcamp provider, one digital credential platform provider, and one nonprofit focused on credential transparency. *Table 2* presents information about the number of participants interviewed in each state, along with the number of agencies or organizations they represented.

Table 2. Overview of Interview Participants

	California	Georgia	Illinois	New York	Washington	Private Organization	Total
Interviews	1	3	1	3	4	3	15
Participants	5	3	4	3	4	3	22
Agencies	1	3	1	3	3	3	14

We recruited participants in multiple waves using a combination of convenience sampling and later snowball sampling. With help from staff at the State Higher Education Executive Officers Association (SHEEO), we identified staff members who played a key role in their state's authorization process for non-degree, alternative credentials in all five state agencies. Following interviews with our initial group of participants, we contacted additional agencies within the state, based on recommendations from our initial participants. For example, several participants at the agency responsible for overseeing private career schools recommended that we speak with the community college board in their state. In one state, the participant recommended that we interview another person at the same agency for more information about data systems and reporting.

For the final phase of data collection, we conducted two additional interviews. First, we contacted several private career schools, and one agreed to participate in an interview. We also interviewed one staff member from a digital credential platform provider. These final interviews complemented the data we collected from the state agencies, by providing the perspectives of two for-profit entities operating within this alternative credential space. In particular, the perspective of for-profit providers allowed us to understand how providers experience the process of applying for authorization. This particular provider had received authorization from multiple states in our study.

Data Collection

Data collection involved two primary components: (1) document review and (2) interviews. Collecting data from multiple sources allowed us to triangulate the findings from both sources.

Document review. We began our research by reviewing online materials for each of the five states, primarily focused on legislative/policy documents. In our review, we collected information available on the website of the agency responsible for authorizing non-degree-granting institutions (see *Table 1*), focusing our attention on material related to the authorization process (e.g., steps in the process, criteria for approval). We also collected additional documents following our interviews with state representatives, based on documents they suggested. In some instances, the participants pointed us directly to the relevant section of the legislation. Thus, while in some states, it was easier to locate key documents than in others; with the guidance of the participants, our analysis ultimately included all key policy-relevant documents for each state.

Additionally, for each state, we searched online for relevant documents related to the authorization process and alternative credentials more broadly. For example, we reviewed the SUNY Micro-Credentialing Task Force: Report and Recommendations (2018) which describes the SUNY micro-credential landscape and provides policy recommendations for these programs. We also identified articles in the press that described issues pertaining to micro-credentials in the state. For example, the 2016 Inside Higher Ed article "Digital, Verified and Less Open" mentioned that Illinois State University was one of the first institutions to provide digital badges (Fain, 2016). In another case, in 2017, the New York State Office of the Attorney General issued a press release announcing a $375,000 settlement with Flatiron Coding School for operating without a license and making misleading statements about student employment outcomes. These documents helped to inform our interviews with agency representatives.

Interviews. Each interview was conducted virtually via Zoom and recorded. Interviews lasted between 30 and 90 minutes. In most cases, both researchers participated in the interviews, with one researcher serving as the lead interviewer. Participants were offered a $75 Amazon gift card for their time, although in most cases, participants could not accept the gift card due to state regulations.

We developed the interview protocol in accordance with our research questions and using information gleaned from the document review. The focus of the interviews varied depending on whether the participant represented the agency authorizing private career schools or another agency/organization. For those representing the former, the interviews covered several key topic areas. First, the interviews included questions about each participant's authorizing agency, including the regulatory

authority of the participant's agency and the participant's role within the agency. The second interview topic area focused on the alternative credential program offerings in the state, including the number of programs, common fields of study, and the language used to describe programs (e.g., micro-credential, certificate). The third area focused on the authorization process in each state, including the initial authorization process (e.g., information collected, efficiency of the process), the history of authorization for these types of short-term educational programs, and the rationale for the state's current process. We also discussed the indicators (e.g., numbers of students) that the agency evaluates in the authorization process and data verification processes, the process for continued renewal of an institution's authorization; and the conditions under which a school might be exempt from authorization. The fourth area pertained to non-compliance in the state (e.g., sanctions) and consumer protection mechanisms (e.g., complaint process). The final interview topic area pertained to collaborations with other agencies in the state (e.g., Attorney General's office) and instances where other regulation agencies have full authority over certain types of programs.

Interviews with other state agencies focused on whether and how micro-credentials, digital badges, and other short-term credentials were implemented within the state's public community college and university systems. These interviews also included questions about participants' perceptions of alternative, short-term credentials in general. Finally, interviews with the private organizations included questions about the alternative credential marketplace, in addition to targeted questions about the operation of their specific organizations, including their interactions with the focal states in this study.

Data Analysis

We transcribed each interview using Rev.com and uploaded to Dedoose for analysis. The coding categories were developed inductively and refined iteratively (Erickson, 2012; Kelle, 2000; Lincoln & Guba, 1985). Both researchers began by reviewing several transcripts and independently developing a list of "open codes" (Merriam & Tisdell, 2015). The researchers convened to compare their codes and to develop a full list of initial codes. This initial list of codes included seven major categories or "parent codes": (1) higher education landscape; (2) alternative credentials landscape; (3) SHEEO agency overview; (4) agency relationships/ partnerships; (5) authorization process; (6) non-compliance of institutions; and (7) consumer protection of people. Each parent code apart from, "higher education landscape," included several child codes, and in some instances, sub-child codes. Examples of the child codes include "legislation" (under "alternative credential landscape"), "authority" (under "SHEEO agency overview"), and "information collected" (under the "authorization process"). Following the development of the list of initial codes, we coded one transcript independently and convened to discuss the codes, noting instances of

agreement and disagreement. At this point, one researcher coded the remainder of the transcripts, and the second researcher audited the codes. Throughout the coding process, we added new codes as necessary.

After assigning codes in Dedoose, we analyzed the data in three main sections. The first section focused on the mechanics of the authorization process at private career schools. To address this section, we pulled excerpts primarily from five parent codes and their associated child codes: SHEEO agency overview; agency relationships/partnerships; authorization process; non-compliance of institutions; and consumer protection of people. The second section focused on challenges in the authorization process at private career schools. The final section focused on the alternative credential marketplace and landscape in general, including micro-credentials, digital badges, and other non-degree credentials at public institutions.

When completing the first two sections above, we first examined each state independently, generating a list of relevant themes for each state. Following the within-state analysis, we conducted a cross-case analysis (Miles, Huberman, & Saldaña, 2014) to explore the generalizability of findings from each state. Our cross-case synthesis of similarities and differences in practices and challenges across states allows us to develop a more general understanding of how various contexts shape state authorization practices. For the third section of the analysis above, we did not distinguish among states in our analysis, but rather viewed findings across all states and private organizations as one corpus of data representing a diverse range of perspectives in the alternative credential landscape. We present key findings and themes from each of the three sections below.

RESULTS

Below, we organize the results to align with our research questions. The first section "Authorization Process Across the Five States" addresses Research Question 1: What is the process for regulating non-degree educational credential programs in each of the five states? The second section "Compliance" addresses Research Question 2: What mechanisms do states utilize to ensure compliance with state regulations and protect consumers? The third section "Challenges in the Process" corresponds to Research Question 3: What challenges do states encounter in relation to regulating non-degree educational credential programs? The fourth and final section of the results is "Landscape of Micro-credentials in the U.S." which addresses Research Question 4: What broader considerations should policymakers consider with respect to non-degree educational credential programs?

We attribute responses to the states from which they came when reporting factual information. However, in cases where participants shared a perspective or opinion, they wished to remain confidential, we do not specify the state or states.

Authorization process across the five states

While the legislative documents provided important details about the authorization process in each state, the interviews provided an opportunity to clarify our understanding of the process. In this section, we describe three key features of the authorization process. First, we discuss the logistics of the process, including the application steps and timing. Second, in each state there are schools that do not require authorization. The second section describes details concerning categories of exemptions. Third, we describe the minimum standards for authorization in each state.

1. Logistics

Table 3 summarizes several of the most common components of the approval processes for private career-oriented institutions across the five states. In short, the process begins when an institution files an initial application with the state authorization agency. A staff member evaluates whether the program meets the minimum standards (e.g., curriculum standards, faculty qualifications) set forth in each state's statutes and regulation. We discuss the minimum standards in more detail below.

Depending on the state, institutional applicants may be assigned a regulatory specialist to help guide them through the authorization process, including the determination of whether they qualify for an authorization exemption. A participant from Georgia described the benefit of working with a specialist in the agency as follows:

> There is consistency with who they are working with. And so there's a lot of guidance that comes from the regulatory specialist. The institutions reach out throughout the year with questions, concerns. And the RS [regulatory specialist] is there to sort of ... To guide them through some of those things that they just don't really know about. And it tends to be the smaller institutions, the unaccredited ones, that need more of that support.

In the course of the application, authorizing agencies collect considerable information from schools pertaining to the school's financial records, types and numbers of programs, the academic catalog, faculty and staff qualifications, record retention policies, enrollment agreements, and marketing materials. For example, according to Article 101 of the New York State Education Law, Section 5001, schools must demonstrate their financial viability through financial documents:

> 5001(4)(b)(iv)(4) the school shall demonstrate financial viability through means deemed appropriate by the commissioner. Such means may include submitting an audited financial statement based on the most recently completed fiscal year; securing and maintaining a performance bond, payable to the commissioner, in an amount appropriate to eliminate any liability to the tuition

reimbursement account in the event the school ceases operation; limiting the collection of tuition funds until each student completes the program of study; or other means acceptable to the commissioner. (lines 161-168)

Additionally, agency staff visit institutional sites to ensure that they have the necessary equipment for their programs and to verify that adequate safety protocols are in place.

Participants noted that the length of the approval process ranges from 3-12 months (see *Table 3*), depending on the state and the level of detail provided on the application when it is first received by the authorizing agency. For example, when the agency receives an incomplete application or there is a problem with an application, considerable back-and-forth between the agency and the school will often ensue, delaying the approval process. A participant from California noted: "It really depends on the type of application and the back and forth between the institutions." The variability in the time needed for authorization was echoed by a participant from Georgia who said:

There's a lot of back and forth when it comes to the authorization process, because a lot of documents need tweaking and working on. And sometimes, based on what they provided to us, it does not meet our minimum standards, which are also listed on our website. And so we work with the institution to help them understand what our minimum standards are, meet those minimum standard.

In addition to obtaining initial approval, each state has requirements around authorization renewal. On the one hand, Georgia, Illinois, and Washington require annual renewal, whereas California requires renewal every five years. In New York, schools must renew their approval two years after the initial approval, and every four years thereafter.

2. Exemptions

In each state, certain categories of schools are exempt from authorization, due to specification in state legislation. We did not specifically examine how or why a state legislature decided which categories of institutions should be exempt, although an exploration of the history of these bills would likely reveal details to this effect. However, in instances where the state law dates back 30 years, tracking down this rationale could present a challenge. Participants we interviewed had vast knowledge of which institutions qualified for exemption, but we did not explore the history of why some schools fell into these categories and not others.

In California, accredited institutions do not require approval from the Bureau. In Georgia and New York, institutions that have been approved by licensure agencies in the state are sometimes exempt, since the educational credential programs are overseen by another agency. A participant from Georgia noted, "We have exemptions for CDL, commercial driver's license, because they are under the Department of Motor

Vehicles." Participants from Georgia, New York, and Washington all mentioned that flight training schools are exempt, as well as schools offering training to employees at no cost. New York and Washington do not require fully online schools without a physical campus located in the state to obtain approval, whereas in California, these types of online programs must obtain approval. Additionally, exemptions granted to schools are generally not permanent. For example, in California, institutions are required to apply for a "Verification of Exemption" every two years. In Illinois, a similar verification lasts only one year, while in Georgia, the exemption length varies.

3. Minimum standards

The authorizing agency grants approval for institutions when they demonstrate that they have met the minimum standards specified in state legislation. The twin pillars commonly identified as driving the approval process are educational quality and consumer protection. These standards are designed to limit deceptive practices. For example, section 94885 of the California Private Postsecondary Education Act of 2009 describes the philosophy guiding the minimum operating standards as follows:

(a) The bureau shall adopt by regulation minimum operating standards for an institution that shall reasonably ensure that all of the following occur:
(1) The content of each educational program can achieve its stated objective.
(2) The institution maintains specific written standards for student admissions for each educational program and those standards are related to the particular educational program.
(3) The facilities, instructional equipment, and materials are sufficient to enable students to achieve the educational program's goals.
(4) The institution maintains a withdrawal policy and provides refunds.
(5) The directors, administrators, and faculty are properly qualified.
(6) The institution is financially sound and capable of fulfilling its commitments to students.
(7) That, upon satisfactory completion of an educational program, the institution gives students a document signifying the degree or diploma awarded.
(8) Adequate records and standard transcripts are maintained and are available to students.
(9) The institution is maintained and operated in compliance with this chapter and all other applicable ordinances and laws. (pp. 38-39)

Broadly, these minimum standards are similar across states:
1. Operating standards which includes quality educational program standards (e.g., curriculum, materials; faculty qualifications; requirements for distance learning; standards for satellite locations; school

administration; facilities/equipment; complaint processes; libraries/other resources; financial resources; health and safety requirements; withdrawals and refund policies). Operating standards also include the maintenance and production of student records.

2. Admission and academic achievement standards which includes admission standards; transfer credit policies; assessment of students' basic skills; enrollment agreement; catalog of school policies; and requirements for obtaining an undergraduate or graduate degree

Two states also require alignment between the mission of the applying institution and the objectives of the programs, as well as requiring that the proposed institutions meet a statewide need. In Illinois, for example, the basic standards pertain to the alignment between curriculum and industry standards for employment. In New York, in order to ensure no deceptive practices, the approval process requires organizations to demonstrate ownership with a record of accomplishment free of any convictions, violations, or other conduct that may affect the educational quality or safety of students or the public.

Table 3: Common Components of the Authorization Process across Five States

	California	Georgia	Illinois	New York	Washington
Length of the Approval Process	Depends on the type of application and the back-and-forth with the agency	Averages 3- 6 months. Has ranged from one month to over a year, both in rare cases.	Averages 6- 9 months, depending on the number of applications in the queue and the quality of the application and submission of all requested documents.	Approx. one-year	Up to 6 months
Information Collected	24 sections on the application including: the type of programs to be offered, ownership information, the curriculum, faculty information, location, lease information for all buildings, library information, etc. Must specify enrollment agreements, catalogs, services for students, records retention	Financial viability information; programming and why there is a need for it in the state; personnel data. Unaccredited institutions must provide information about their withdrawn students and their graduates including placement data and reasons why students were not placed (if applicable)	Facilities, students, finances, faculty and staff, licensure and certification exam results (if available), employment outcomes for students (if available), catalog, program descriptions, complaint procedures, general institutional and academic policies/procedures, surety bonds, advertising/ marketing materials, website, enrollment agreements, ownership information, liability insurance, records retention	Fiscal capacity, organizational and management structure, curriculum, ownership information, proposed licensed personnel, facilities, administrative and instructional activities	Advertising strategies, financial information (audited financial statement; tuition income), catalog, faculty qualifications, types and number of programs, policies, financial aid, other student services, school calendar, changes to programs or new programs, discontinued programs, and business license
Steps to Verify the Accuracy of Information Provided	Data are mostly self-reported. The Bureau might request information about a subset of the programs offered as part of a verification process. If there are any observed irregularities, those are further examined.	Agency can cross-check information for accredited institutions with IPEDS, and check institutions' websites for consistency. Schools must sign a statement attesting to the accuracy of the information provided.	After the first year in operation, previous year's completion data is compared. If needed, insurance and surety bond info are verified with the agent. Facilities info is verified with the landlord and/or zoning entities. Can also verify licensure accuracy data.	1. Review documentation 2. Identify deficiencies; if any 3. Provide opportunities to re-submit information 4. Site inspection	The agency has an agreement with the U.S. Department of Labor that allows them to obtain unit-record data on students. Schools must also provide an audited financial statement.

	California	Georgia	Illinois	New York	Washington
Length of Time Until Renewal is Required	5 years (unless there is a non-compliance issue)	Annually. Exemptions have varying terms.	Annually. Every 5th year, a 5th Year Permit of Approval application is required. Verification of exemption is granted for one year.	Following initial approval, renewal is required after two years and every four years thereafter.	Annually
Exempt Institutions	All schools except accredited non-profits require approval, including fully online programs. If an institution has submitted an application for "Verification of Exemption" they reapply every 2 years.	An institution might qualify for an exemption if they are approved by another state agency. Other exemptions pertain to schools approved by the Real Estate Board, and flight schools and commercial driver's license schools under the Department of Motor Vehicles. Business-to-business programs, such as one school providing training to employers at another business.	Some institutions are grandfathered and exempt from oversight by the agency. There is no grandfathered status for Private Business and Vocational (Career) Schools.	Some exemptions include: schools training their own employees; a school approved by another state agency; flight training schools; schools preparing students for licensing exams; business to business training; instruction provided to employed professionals as part of continuing education; non-degree schools without a physical campus.	Programs provided to employees for no cost; recreational instruction; instruction that can be completed in three days or less; and professional continuing education programs; state operated programs; degree-granting programs; federal aviation programs; cosmetology schools; fully online programs without a physical campus

Compliance

The regulatory structure is, at its core, designed to protect students. We divide this next section into two parts, the first describing general consumer protection mechanisms in the state and the second describing specific procedures for investigating non-compliance. *Table 4* presents information across the five states on the compliance and consumer protection mechanisms of state authorization.

1. General consumer protection

While the authorizing agency does not have any direct influence over the tuition pricing for these institutions, it does provide certain protections to prospective and current students. State agencies require prospective institutions to provide data on credentials, competencies, and outcomes linked to job placement and earnings. Prospective students must be able to search for and compare the best training and educational opportunities that lead to a high-quality credential with value in the labor market. More data means more information in the hands of consumers, evaluators, and oversight bodies. State authorizing agencies play an important role in protecting students from false claims and fraudulent behavior. A participant from New York described using in-house reviewers to "make sure that the proposals conform to the industry standards that these potential completers will be eligible for employment."

States are especially attentive to protecting students in the event of school closure. For example, when an institution closes in Georgia, the school is required to send their student files to the state authorization office. One participant from Georgia noted: "We are the repository, so to speak, for closed institutional files. So students who attended a closed school in Georgia can come to us and request a transcript." A participant from a different state agency added concerns regarding potential school closures in light of the pandemic:

> Based on our current set of circumstances with the financial fragility of a lot of institutions, compounded by COVID and declining enrollment, it's hard to know quite frankly, what the likelihood is of an institutional closure in today's climate. And I think it's more true than it has ever been. And so it's really forcing us to ask some harder questions about the maintenance of transcripts.

All five states in our study have an established state tuition recovery policy. A participant from California noted:

> [We] also have what we call the Student Tuition Recovery Fund, which is actually paid into by students enrolling into the private post-secondary schools. So that fund is set up to help with students who are faced with a closure to help them with any type of economic loss they may have suffered due to that closure and not getting refunded from the school.

Institutions of all types, including those offering non-degree, short-term credentials, are typically required to contribute a portion of their tuition revenue to the recovery fund for a set number of years.

Finally, all states have a process for inspecting physical school sites, although the frequency of site visits varies. On the one hand, an annual site inspection is required in Georgia, while in California, an inspection is required twice within a five-year period. In Illinois, site visits are at the discretion of the state. The specific activities that occur during these site visits also vary across states. For instance, in Washington, the inspector will interview students and faculty, while Georgia will review student records.

2. Complaints

State agencies have multiple mechanisms for learning about non-compliance. All five states mentioned that they "occasionally" to "frequently" learn about institutions that have not received authorization through licensed competitor schools. Moreover, California, Georgia, and Illinois all indicated that they sometimes learn about unlicensed schools through current or prospective students. In some cases, a student contacts the agency to file a complaint, while in other instances, a student or parent will simply contact the agency to inquire whether a school is licensed. Sometimes the authorizing agency will learn about non-compliance through other government agencies. For example, in Georgia, when unlicensed schools apply for Workforce Innovation and Opportunity Act (WIOA) funds, this triggers a process whereby the authorization agency contacts the unauthorized school.

When discovering non-compliance, states typically contact the non-compliant institution to provide information about the authorization requirements. In many instances, schools are not aware of the laws. A participant from Illinois described the state's approach as follows:

> We try to go from aspect that they weren't aware of us. So we state that the acting rules are here to provide any instruction and training in Illinois, and all of your programs need to be approved. Here's the link to the rules, here's a link to the Act, please contact our agency, and have your applications prepared within 14 days. [We provide] our contact information, and then there's a brief disclaimer non-compliance which can result in referral to Illinois Office of the Attorney General for consumer fraud.

The non-compliance sanction process escalates if institutions do not respond to initial requests for compliance.

Each state also has a process for addressing student complaints about institutions under their purview. Typically, students file complaints through an online website. In Washington, this website is called the "Student Complaint Portal." Before filing a formal complaint, Georgia requires students to exhaust the complaint process at their institution. California was the only state in our study that mentioned specific

outreach efforts to inform students about how to file complaints, although other states may report similar efforts.

After receiving a formal complaint, the state agencies contact the potential "offending" institution and investigate the situation. State agencies will typically visit schools when they receive a complaint. If the institution is operating without a license, the state agencies will provide institutions with an opportunity to formally apply for licensure before taking further action. The most serious offenses, such as consumer fraud, are handled by the Attorney General's office. Serious offenses might result in formal litigation and the revocation of a license. In Illinois, if approval is revoked, school owners and senior administrators cannot be affiliated with any private career or vocational school in the state for seven years.

Table 4: Compliance and Consumer Protection Components of State Authorization

	California	Georgia	Illinois	New York	Washington
Site Visits/ Inspections	Each school is inspected twice for compliance in a 5-year period. If the Bureau receives a complaint, the institution will likely receive an additional site visit.	Annually if the school has a physical location. Upon request, an institution might be required to submit a strategic plan for program growth.	Site visits are requested at the discretion of analyst/staff.	Required at least once per renewal period. An unscheduled inspection may occur at any time.	Yes. Inspector will examine the facilities, equipment, and supplies. The person will also interview students and faculty.
Learning About Lack of Compliance	Through students who file a complaint or from another institution. Site inspectors might see another institution operating during their travels. Other agencies notify the Bureau with concerns about an institution's approval.	Consumer Protection Division. When unlicensed schools apply for Workforce Innovation and Opportunity Act (WIOA) funds, this triggers the agency to contact the school. In other cases, a competitor will notify the agency or a student will contact the agency.	Through investigations and searches conducted by the agency; referral from other competitors who have already received approval; students and parents who are wondering whether a particular program is approved, other oversight bodies	Through competitor institutions or others in the agency monitoring licensed schools with insights into compliance.	Through competitor institutions
Student Complaint Process	Through the website, during site inspections, the Office of Student Assistance and Relief conducts community outreach where they share information about how to report non-compliance.	One program manager handles all complaints. After exhausting their institution's complaint process, a student can file a complaint through the agency's website.	Institutions are required to have a complaint policy/ procedure on their website, the catalog, and on the enrollment agreement	A complaint division, with 5 or 6 investigators who respond to student complaints or to investigate unlicensed schools.	The student can file a complaint through the Student Complaint Portal housed by the WA Student Achievement Council. After receiving a complaint, the agency contacts the school; the school submits a response; an investigation is conducted; and a final decision is made.

	California	Georgia	Illinois	New York	Washington
Response to Non-compliance	The Bureau will contact an institution found to be operating without approval (possibly through a citation). The institution could then rectify this non-compliance by applying for approval. An institution might also receive a citation for providing incorrect information. The attorney general's office handles the most severe instances of non-compliance.	There is a staff member responsible for contacting institutions who are operating without approval and initiating the application process. If an institution does not respond to an inquiry from the agency about non-compliance or begin the process in a timely manner, they might receive a cease and desist letter. In the case of "deliberative non-compliance," the attorney general's office get involved.	A non-compliant institution is contacted via letter that explains the rules for obtaining approval. The institution must submit a report within 14 days. Violations are referred to an administrative hearing. Non-compliance can result in a consumer fraud referral to the office of the attorney general. If approval is revoked, owners and senior administrators cannot be affiliated with any other career school in IL for seven years.	Non-compliance might result in an institution not being approved for renewal. It may also result in Disciplinary Action through Ed Law 5003, which may include imposition of fines as consequence and/or deterrent.	The Workforce Board works with the attorney general. If the school wishes to appeal the agency's decision regarding sanctions, they can litigate and will receive a hearing.
Other Consumer Protection Mechanisms	The Student Tuition Recovery Fund, paid into by students enrolling in the private post-secondary schools. The fund is set up to help students with any type of economic loss they may have suffered due to a school closure and not receiving a refund from the school.	Digital student files must be sent to the agency in the case of school closures. Schools are required to contribute to the Tuition Guarantee Trust Fund (TGTF) for the first five years of authorization (exempt schools do not contribute to the TGTF) in case of a school closure.	Private business and vocational schools are required to have a continuous surety bond in place. See section 1095.210 of the Administrative Rules.	Tuition reimbursement account; the renewal process; the enrollment agreement. General consumer protections and fraud laws through the attorney general's office.	Tuition Recovery Trust Fund. The attorney general is responsible for handling consumer protection issues. Class action lawsuits have been filed in the past.

Across all five states, authorizing agencies are seeking ways to improve the aforementioned process and make it more efficient, in addition to ensuring quality and protecting consumers. The next section describes five key challenges and barriers in the authorization process mentioned by state representatives during our interviews. These challenges include (1) limited budgets and resources, including human resources, to conduct an authorization review or renewal; (2) interagency communication; (3) institutions' response time when asked to provide information and, at times, their limited knowledge of the authorization process; (4) difficulty assessing the quality of institutions' self-reported data; and (5) limitations in current systems and infrastructure.

The focus of this section is on the perspective of representatives of state authorizing agencies. However, in a few areas we have also included the perspective of a representative from the credential provider or the nonprofit organization. Additionally, we have noted a few instances where one state explicitly mentioned that this was not a challenge in their state, but rather, an aspect of their state's operation of which they were especially proud.

1. Budget/resources (including human resources)

Representatives from four out of five states mentioned budget and resources, including human resources, as a challenge affecting the authorization process. In particular, limited budgets result in "under-resourced" staff in some states. One participant noted that it was common in her office to "wear several different hats" and to carry a "significant workload." She was responsible for working on exemptions, but also had communications responsibilities and managed the agency's website. Given the limited staffing, seemingly minor inconveniences could have rippling effects. For instance, this same participant mentioned that she would sometimes request information from an institution applying for authorization and not hear back for weeks or months, disrupting staff workloads and planned timelines.

In some cases, the limited resources make it difficult for agencies to achieve progress toward their goals or engage in more "resource intensive efforts" to improve operations. For instance, a representative from one state noted that it requires considerable human resources "to discern between the credible and not credible actors." A representative from another state mentioned that although the authorization renewal cycle "works really well," he would still recommend that renewal be conducted less frequently due to limited resources. When there are few to no staff members in an office with a financial background, it is infinitely more challenging to review and verify the financial information provided by schools. Nonetheless, the authorization agencies carry on with the limited resources at their disposal, in several

cases noting how they are able to continue conducting business despite these challenges.

While one agency in each state is primarily responsible for overseeing the authorization and regulation of private career schools, they often partner with other state agencies. For instance, when there are compliance issues, the state might work with the attorney general. In other cases, the authorization agency will work with a licensing authority in their state, who also carries some authority for overseeing these non-degree-granting institutions.

Two of the five states in our study described interagency communication as a challenge. For example, when asked about non-compliance issues, a representative from one state indicated that he did not receive much information from the attorney general regarding relevant legal issues. Rather, he received "just whatever is released to the public." A representative from another state described more pervasive challenges with interagency communication: "There are other state agencies [...] that don't know that they are supposed to be working with us, or even that we exist and what we do. That happens, because communication in the past hasn't been sound and consistent." However, this same representative noted that some individuals at the agency have been "making quite an effort" in recent years to connect with other state agencies.

In comparison, a third state was proud of the partnerships that had developed in recent years. A participant from this state described an interagency group (e.g., Veterans Affairs, Board of Nursing) organized by her authorization agency that has been meeting periodically for over a year to discuss issues relevant across both the institutions and the licensing bodies, particularly on issues pertaining to micro-credentials.

3. Institution responsiveness/Limited knowledge of the authorization process

Obtaining approval for a non-degree, short-term program to operate in a state requires cooperation from both the state agency and the institution seeking approval. A participant from one state described challenges related to the responsiveness of the private career schools to requests from the authorizing agency. Despite proactive efforts to complete the authorization swiftly, a participant from this state noted, "We've had institutions drag it out for over a year." This same participant elaborated, "We will ask for information, and we may not hear from them for weeks, potentially even months."

A related issue described by another state was institutions' limited knowledge of the authorization process. A representative from this state explained, "I do think there's

a general sentiment for some institutions that they just don't simply know what the process is." In some cases, an institution is operating without approval because the school was not aware of the state requirement for approval. This frustration is felt on the part of the institution seeking authorization as well, noting that state agencies do not always respond to emails in a timely manner. One participant from a for-profit provider compared the lack of responsiveness to "criminal neglect." She elaborated, "…Just really absurd levels of ignoring applications and requests for clarification or just an answer at all." At the same time, this participant understood that these state agencies were working with many institutions and juggling competing responsibilities. Nonetheless, she concluded, "It would just be nice if they were really staffed more to be able to be as responsive and move as quickly as the businesses clearly want to move."

4. Self-reported data

As part of the authorization process, institutions submit various types of information to the authorization agency (e.g., financial data, faculty credentials). Since many private career schools do not receive Title IV funds from the U.S. federal government, they are not required to report data to the Integrated Postsecondary Education Data System (IPEDS). This makes it difficult for the authorization agency to verify the accuracy of data submitted by institutions seeking approval. Notably, IPEDS data are also self-reported by the submitting institution, but submitting inaccurate data to the federal government is subject to more intense scrutiny and even potential criminal liability.

States do take action to verify data, to the extent possible. For example, the information California receives is self-reported, leading the California Bureau for Private and Post- Secondary Education to, at times, request additional information from a subset of a school's programs in order to examine the data provided for those programs. Moreover, if the Bureau notices any irregularities in the data submitted, they will follow up on those anomalies. In Illinois, facilities, insurance information, and licensure data can be verified via the landlord, insurance agent, and licensure agency, respectively. Additionally, after the first year of a school's operation, Illinois compares previous year's data to the current submission cycle. Georgia verifies data for accredited institutions with IPEDS data and cross-checks information provided on the schools' websites with information submitted to the agency. In Georgia, schools must also submit a document indicating that all information provided is accurate. In New York, there are four steps taken to verify the information provided during the authorization process: carefully reviewing all documentation provided by the school; identifying any deficiencies in the applications; providing schools an opportunity to re-submit information as needed; and finally, a site inspection.

Washington was the only state that explicitly mentioned the capacity to collect unit-record student data. More specifically, the Washington Workforce Board has an agreement with the U.S. Department of Labor that allows them to obtain student records, which can then be used to verify student outcomes data. Additionally, Washington requires that schools provide an audited financial statement.

Beyond problems with verification, the limited representation of private career schools in IPEDS and other federal data sets makes it challenging to understand the scope of the short-term, alternative credential industry. One participant representing an authorizing agency summarized the problem as follows:

> Less than one quarter of those [non-degree granting] schools participate in federal Title IV programs. So, I think that's important to note because if you're looking at national datasets or you're thinking about all the data that you might have from the federal government in terms of what might be happening with these schools, that doesn't even begin to capture the universe of what might be out there.

Without verifiable data, state agencies must use their limited resources to best approximate the number of micro-credentials and digital badges earned by members of the state. This includes finding the U.S. Department of Education report on degrees and certificates and matching it to the state ETPL (Eligible Training Provider List), before matching the data to other licensing organizations and then removing any duplicates. Accordingly, the lack of federal data on private career schools makes it difficult to obtain a complete and accurate understanding of the alternative credential industry and the students who enroll in these programs. One participant from a state authorization agency added:

> So, we, as an agency, have been trying to sort of have this tectonic shift toward looking not just at the inputs but also at the outputs. But what we're realizing there, much like probably all the colleges and universities, the data systems and the work for them just aren't good. There's not a good system. So, it makes it very challenging to utilize data well if the systems that undergird its collection and reporting and use aren't always there, whether it be national or at the state level.

In Washington, the Workforce Training and Education Coordinating Board (WTB) was highlighted for its ability to collect unit-record data about student outcomes.

5. Systems/Infrastructure

The success and efficiency of any organization is, at least in part, attributable to its underlying systems and infrastructure. Indeed, representatives from two of the five states in our study discussed challenges related to the authorization agency's systems

and infrastructure. Although it was "cutting edge" twenty years ago, a representative from one of these states described its current system for collecting required information from schools as "antiquated." Currently, institutions are entering information "into essentially a spreadsheet." More advanced systems could streamline some of the agency's operations.

A second state discussed several problems related to its systems and infrastructure. First, a participant described a "complicated and outdated [web] system" where schools are required to register. While it is possible for the public to view a complete list of authorized non-degree-granting institutions on the agency's website, the web system does not readily allow one to download a list of authorized schools without considerable effort. Second, this same participant noted limitations related to "our systems and structures for collecting and reporting data," which make it challenging to report and visualize data. Moving from an input-based review to a more outcomes-based review process can be challenging given the larger systems and structures available in state agencies.

Landscape of Micro-Credentials in the U.S.

Our final section of results addresses our fourth research question: What broader considerations should policymakers consider with respect to non-degree educational credential programs? In this section, we report on responses from participants discussing the general landscape of micro-credentials, digital badges, and other short-term credentials in the United States. Many participants expressed the responsiveness of micro-credentials to meet market demands and changes in the economy as a key strength of the industry. The nimbleness and dynamic nature of the industry have led to an increase in the number of schools seeking authorization. The ways in which these educational providers are created (or closed) in response to the job market makes them capable of adapting to a changing economy in ways not commonly perceived in traditional higher education.

There are many players in the alternative credential space searching for ways to differentiate themselves within the broader industry by claiming "that they can do it better, faster, cheaper." One reason why new terms such as nano-degree and micro credential are becoming more popular is due to providers trying to differentiate themselves in a bloated marketplace. It will appeal to some students to earn a credential from Coursera or edX, as they are partnering with prestigious universities such as MIT. A participant from a digital badge platform provider noted that she has seen degree-granting institutions become more open to micro-credentials, which she attributed to their increased willingness to "chase where revenue is going." This was confirmed by a participant in a public higher education system who expressed an increasing desire on the part of institutional leaders to "give people what they want or risk being left in the dust."

Additionally, a 2018 survey of 750 U.S. hiring managers suggests that employers are gaining increased awareness with non-degree credentials (Gallagher, 2018). For example, 74% of hiring managers were aware of digital badges and 73% were aware of verified certificates such as those offered by Coursera and EdX. In fact, 14% of hiring managers hired someone with a digital badge and 20% hired someone with a verified certificate. However, it is unclear whether those hired also had a postsecondary degree. Along with several participants in our study, we anticipate that as participants from these types of programs are hired and experience success in their positions, employers will become even more comfortable hiring others with short-term credentials. These positive experiences can change people's minds about the value of short-term career-oriented programs as an alternative to degree-granting programs. Gallagher's (2018) report indicates that employers' acceptance of these short-term credentials is especially true when employees already have prior work experience and some postsecondary education. For instance, one hiring manager in Gallagher's report said: "In and of themselves they carry little weight but added to other credentials such as continuing education, years of experience and recommendations they can push one candidate above another for consideration" (p. 15).

These programs are changing the landscape of higher education in dramatic ways. As institutions, state governments, and consumers adapt to this changing marketplace, four themes emerged from our conversations about how to navigate these changes: (1) the need for clear criteria to evaluate credential quality; (2) the balance between providers' autonomy and state regulation; (3) the tension between viewing short-term credentials as businesses or educational institutions; and (4) the disruption and opportunities the COVID-19 pandemic presents to the industry.

The need for clear criteria to evaluate credential quality

Short-term credential programs offer students an opportunity to retrain quickly in a new field. These programs are notably different from traditional degree-programs, and yet, they are often evaluated from a similar framework as traditional degree programs regarding what is considered a "quality" program. One area where this comes into play is the evaluation of faculty expertise. Short-term career programs often challenge prior assumptions as to what expertise is and who should be teaching in the classroom. While a doctoral degree might be required at many degree-granting institutions in the United States, the required credentials needed to teach at a coding bootcamp, for instance, might be more applied skills gained from on-the-job practical experience. Consequently, some private career schools have elected to approach the state agency and asked them to take a second look at particular teachers who the agency might view as unqualified at first glance.

Additionally, micro-credential programs may sometimes be viewed with skepticism. The short-term credential provider participant noted that, as (primarily) for-

profit institutions, these short-term credential providers are often viewed with greater scrutiny than non-profit degree-granting institutions who are presumed to be operating in good faith. Still, at public degree-granting institutions, faculty and other campus stakeholders also question the quality of micro-credentials, making it critically important for institutions to demonstrate credential quality for any newly developed programs. One of the biggest questions interview participants raised was how institutions could offer micro-credentials in a way that they would be perceived as having the same quality as traditional degree programs. One way to ensure this quality is to require institutions to articulate clear learning standards and assessments associated with those standards. These credentials also have to be portable and stackable and demonstrate value outside of the institution. Interestingly, campus stakeholders better understood the value of micro-credentials when they were framed as similar to smaller academic minors—a "mini-minor" of sorts.

As previously noted, we interviewed one person representing a non-profit organization working on efforts to increase credential transparency. This participant noted that his organization's efforts to provide more publicly accessible information about short-term credentials will "take a lot of pressure off the state of being the ultimate arbiter of what's good and bad." Rather, potential students and other stakeholders will be able to independently evaluate program outcomes using these public and searchable data.

The challenge of balancing state regulation with providers' autonomy

If the purpose of regulation is to ensure education quality and consumer protection, then there is always a balance to strike between state regulation and schools' autonomy/flexibility. At the same time, receiving approval to operate in a state is often a source of pride for an institution. For instance, one state agency participant summed the issue as follows:

> A tension exists between autonomy and regulation in any business or any state. While our schools have, at times, been less pleased with the level of regulation that they have, they've also been the first to use that as a badge of honor or a stamp of approval that they've achieved a level of regulatory oversight or a level of quality consumer protection that perhaps their competitors don't have.

This same tension was noted by the short-term credential provider we interviewed. The deepest source of frustration from the provider's perspective is the perceived lack of understanding from some of the states of the fundamental operation of their institutions. The frustration stems from the fact that, from the provider's perspective, the regulation process of the agencies was not built with a short-term bootcamp or distance education program in mind. This participant noted how some students enroll in short-term credentials "just in case" they might want to utilize the

skills at some point in their careers. However, state regulators evaluate short-term credential providers as if the goal is employment or a career change for every student. Our participant described her experience working in the compliance unit at her prior institution. At this school, students would enroll in the short-term programs as a hobby:

> But they [the school] were held to the graduation and placement outcomes of every other program, and there was no flexibility for saying these people... will sign on whatever dotted line to attest to the fact that they don't want a job from this.

Despite these concerns about a lack of flexibility, the providers we spoke with also saw merits in the regulatory process, particularly as they applied to protecting the consumer. They articulated a difference between those institutions who are willing to go through the approval process regardless, and those who feel the current regulations do not apply to them. State approval also lends some protection to the consumer, as it provides an acknowledgement of credential quality and school legitimacy.

On the other hand, degree-granting institutions were not subject to the same degree of outside oversight as the non-degree-granting institutions. For instance, a participant from one of the state systems of public higher education in New York noted that the review process for micro-credentials falls under the same approval process used for other academic credentials in the state. This increased autonomy afforded to degree-granting institutions was recognized by a representative from the authorizing agency in New York: "For our degree-granting institutions, if they're authorized at the institutional level, they have the flexibility or autonomy, if you will, to create non-degree granting programs that they might want to offer for a particular purpose." Nonetheless, degree-granting schools faced other challenges pertaining to the approval of new programs, such as buy-in from campus stakeholders who might question the need for an additional credential program and their quality.

The tension between viewing short-term credentials as businesses or as educational institutions

The need for balance between autonomy and regulation—and the tension that sometimes ensued—was related, at least in part, to how states sometimes viewed these private, non-degree providers as primarily businesses rather than primarily educational institutions. One of our participants representing an authorizing agency described the issue as follows:

> We have always treated these entities as educational organizations first and businesses second, and we've been very aware of not flipping that around, and not seeing that the opposite way. [...] And I think my estimation is in some states, there's a perspective that these are businesses first, and therefore, their

registration or their authorization is really registration as a business not as an educational institution.

A participant from another state seemed to fall on the side of viewing the schools primarily as businesses: "It's a fine line because these are businesses. Yes, they're schools, and there's minimum requirements, and they pay fees, et cetera, et cetera, but they're small businesses." These viewpoints are illustrative of the broader continuum with which states view private career schools as primarily businesses or primarily educational institutions.

Moreover, one participant we interviewed represented a short-term credential provider. This provider was continuously seeking ways to improve their programs and to start new programs to respond to market demand. While the participant we interviewed viewed her institution as primarily an educational institution, she also noted that their operation sometimes moved at the speed of a business, which came into friction with the state authorization agency's speed. Indeed, at times the participant described feeling "hamstrung" by the state agencies. The participant noted:

> What causes the real challenges to the business is when we try to plan for launching a new program and we go about it the right way and apply for approval and do those steps. And yet we're delayed sometimes quite significantly, due to just the backlog at the regulator.

As educators, providers want to offer a quality educational experience for their students. Nonetheless, from the provider's perspective, delays from the state sometimes negatively impact students, leading students to receive a "subpar version" of a program. In comparison, on the degree-granting side, approval for micro-credential programs generally falls under the faculty governance structure of the school. Accordingly, degree-granting schools have a certain level of autonomy with respect to their curriculum and program offerings that is not similarly afforded to private career schools.

The disruption and opportunities the COVID-19 pandemic presents to the industry

The COVID-19 pandemic caused considerable disruption for both non-degree-granting micro-credential providers and public postsecondary institutions in the process of designing new credential programs. According to a participant representing the non-degree program authorization agency in Washington schools are doing "everything they can" to ensure the safety and well-being of their students, faculty, and staff. Many short-term credential providers offer practical, hands-on training that must be done in person, such as truck driver training. Consequently, this same participant estimates that approximately 25% to 30% of schools that have not reopened since the initial closure of schools in March 2020 will not survive the pandemic.

Several participants noted that the pandemic had slowed down the momentum that had been building around micro-credentials. Hiring freezes and staff layoffs have limited the resources that would have otherwise been available for managing micro-credential implementation efforts. One participant noted that she had recently started seeing efforts to implement the micro-credentials ramping up again. In particular, she believes some of this renewed interest in micro-credentials is due to economic ripple effects of the pandemic:

> Folks are starting to email me again because I really think now they have come out from the fire of it. They can see that micro-credentials are going to be a way that we are going to be able to help the people who have been laid off as a result of the pandemic. We are going to shift our focus to that.

States are already receiving applications from schools seeking to offer new credentials to meet the career needs of those who have been displaced due to the pandemic. These programs show promise in terms of helping people who need to make a quick transition back to the workplace in a field that is in demand and where they will receive the kinds of opportunities that will support themselves and their families.

POLICY IMPLICATIONS

Examination of the state authorization process raises important questions how to best design and implement this process, particularly for a market and curriculum that is changing so rapidly. What metrics and data must be measured to differentiate high quality programs from lower quality programs? How should state authorizing agencies adapt their approval and renewal processes in light of changing labor markets? What role should state policymakers play in the encouragement or discouragement of new providers in this industry? The shared challenges facing states in the authorization process highlight several broader policy considerations that serve to disrupt the standard discourse in higher education. Drawing upon the perspectives of the participants in our interviews, and supported by other organizations in the non-degree credentialing landscape, we propose several policy recommendations for practitioners and policymakers responsible for designing and implementing authorization processes.

Recommendations for State Authorizing Agencies

Collect and publish outcome data on all postsecondary offerings in the state.

Technology and distance learning has enabled a rapid increase in the number of new credential providers in the United States. State authorizing agencies can struggle to stay on top of all the outcomes data necessary to gauge institutional quality.

The onus of providing this data should be on the institutions to make their outcome information transparent. More specifically, as a condition of receiving an operating license to issue educational credentials in a state, the state regulatory office should require increased data transparency from these institutions (Duke-Benfield et al., 2019). From our interviews with for-profit providers, we found that they desire state approval, in part, as a way of legitimizing their programs. State agencies could consider leveraging this interest in order to collect the necessary data that confirms they are producing a quality education.

One approach is to create a public, searchable database for all programs in a state. This approach requires cooperation and collaboration between providers and states. To increase the comparability of information collected across providers, states should partner with providers to develop a standard data collection protocol, which would include clear data definitions. Furthermore, with an eye toward improving educational equity in both student access and outcomes, these data should allow states to examine credential attainment and employment outcomes by demographic characteristics (Duke-Benfield et al., 2019).

An onus on the institution for reporting data, combined with increased methods for verifying this data, will resolve a number of challenges facing state authorizing agencies. Indeed, the state of Washington provides an exemplary model for how states can collaborate with short-term credential providers and other government organizations (e.g., Department of Labor) to collect unit-record data. Thus, there is less reliance on self-reported data as part of the authorization process in Washington.

Develop a registry of quality non-degree credentials in the state.

While Bishop (2019) recommends that the federal government develop a registry of quality noncredit credentials, we believe it would be beneficial, and perhaps more manageable, to begin with a registry in each state. For example, Washington took an important first step toward this effort by developing Career Bridge, a searchable database of degree- and non-degree educational programs in the state. The profile for each program includes general information about the program (e.g., expected program length, tuition/fees) and the school (e.g., school type, availability of career counseling, child care, and other services); student characteristics; and student outcomes (e.g., earnings, completion, industry employed).

Despite these critical first steps, Career Bridge does not evaluate program quality, but rather provides the information for students and other consumers to independently judge program quality. In collaboration with short-term educational program providers, states could develop a set of metrics to evaluate quality, potentially resulting in a rating system, with higher quality programs receiving higher accolades. This rating system could be nuanced in that there might be ratings along multiple dimensions of program quality, and students could select those dimensions that are most important to their educational goals.

Identify the organizational bottlenecks that cause delays in the authorization process.

At times, both authorizing agencies and short-term educational providers expressed frustration with the time needed to complete the authorization process. In some cases, these delays happened because educational providers were unaware of the authorization process and required more back-and-forth between the agency and school to submit the initial application for authorization. It is during this back-and-forth process where delays are most likely to arise. We spoke with stage agencies who expressed that an important first step to addressing these delays was in simply identifying the specific points in the approval process where delays frequently occur.

A helpful model in this regard is Georgia, who after identifying delays in the process, now assigns each new provider to a regulatory specialist at the agency to guide them through the authorization process. Agency staff reported that this practice was helpful in streamlining questions and problems that came up in the authorization process. The educational provider always knew whom to contact and that regulatory specialist was familiar with the provider's unique concerns and timeline.

Encourage accredited postsecondary institutions in the state to explore the application of stackable credentials toward an associate or bachelor's degree.

Career schools are working to redefine their role in relation to workforce development, in addition to offering programs that appeal to a diverse student body. Credentials that can be used alone or in combination with other requirements toward a degree stand to open up a new segment of the market in postsecondary education, including students from underrepresented populations, such as women, first-generation, veterans, and students of color. Programs such as micro-credentials that allow for the greatest flexibility and professional relevance, will appeal to some students previously uninterested in traditional higher education. SUNY provides an excellent example in this area. Their Micro-Credentialing Task Force represents a system-wide effort to develop micro-credential policies within the individual SUNY institutions. SUNY leaders viewed micro-credentials as a pathway to a college credential for individuals who might not have always sought post-secondary education.

We spoke with agency representatives who discussed various bureaucratic barriers between the nonprofit and for-profit sectors in their state. Communicating common standards across these sectors could result in traditionally accredited institutions being more willing to accept outside short-term credentials as evidence of progress toward an associate or bachelor's degree. Furthermore, stackable credentials are likely to appeal to public and non-profit colleges and universities seeking to address revenue, enrollment, and funding declines. Opening up the sector to new groups of

students who may later transition into traditional degree programs stands to benefit traditional institutions in the end.

Recommendations for Policymakers

Legislate the development of a state longitudinal data system.

State legislatures are in a position to create strict policies around data collection in the postsecondary sector. Just as we recommend that state agencies require educational providers to produce clear and transparent outcome data for their students, we also understand that this effort would be exponentially easier if state policy required institutions to provide comprehensive data on student outcomes, by investing in unit-record, longitudinal data systems. These systems should include the collection of employment and earnings data that could serve to "validate" the credentials in the eyes of consumers and the market.

The state of Washington provides a helpful example of a statewide data system that links students' academic outcomes to job market outcomes. If leveraged properly, these data systems could provide robust information about the economic value of specific credentials, which would be useful to prospective students. However, implementing a data system like this requires support from the highest leadership in the state (i.e., the governor and legislature).

Restructure Pell Grant programs and state-based financial aid to support non-degree skills training.

Student financing for short-term programs remains an issue. Financial aid is not currently available in the pursuit of most short-term credentials. At the federal level, the ability to use short-term Pell grants for micro-credentials would help serve students who may have limited income but are in need of new skills to secure employment. Financial provisions for non-traditional providers of postsecondary education to access Title IV monies is still up for debate at the federal level. A potential solution is to encourage traditional postsecondary institutions to collaborate with short-term career programs in a joint effort to provide postsecondary learning. The ability to do this depends on how nimble and effective colleges and universities are in authenticating and recognizing postsecondary learning wherever it occurs (Bishop, 2019). However, the use Pell grants for short-term, non-degree programs would also encourage better federal oversight and required reporting of these organizations and programs.

Similarly, considering ways in which state financial aid may be applied to enrollment in noncredit skills courses could result in more low-income students pursuing skills-based training. While none of our participants reported any state-funded scholarships for quality non-degree skills training, several mentioned the

positive impact this would have on enrollment in these programs.

Incentivize institutions to forge relationships with employers

Strong partnerships between employers and short-term educational providers are critical to ensuring that graduates of these programs have the skills needed for successfully securing new jobs or advancing in their current positions (Ganzglass et al., 2016). Across the five states in our study, most short-term educational programs offered by career schools already included industry experts among their faculty. However, public and private institutions that seek to develop short-term credential programs might consider expanding on this model with industry stakeholders, potentially utilizing their alumni network as a starting point.

In some cases, community colleges and four-year institutions might bring their short-term credential programs directly to their industry partners' employees. In effect, these partnerships bring postsecondary education directly to students, potentially streamlining access to higher education. As previously mentioned, we learned about a partnership between a casino and a community college, where the community college developed a culinary arts micro-credential for the casino's dining employees. Recipients of the micro-credential could later apply their credits toward a degree. Incentivizing employers, potentially through financial incentives to their employees, to collaborate with educational institutions to provide training for their employees would strengthen the link between education and employment.

Recommendations for Research

Identify the economic payoffs of these degrees and the outcomes of students that pursue these paths.

As researchers, practitioners, and policymakers, we need evidence that noncredit programs are a viable path to employment and financial security. Currently, the authorization process focuses largely on the institutional inputs (e.g. - resources, faculty, curriculum), with limited information available on the earnings outcomes of graduates. Future research should examine the economic returns to short-term training programs, disaggregated by student group and area of study. For example, career-training programs tend to respond to professional standards for employment in a particular career or profession, whether created by state professional licensing boards or simply normative industry standards. Further research should examine the relationship between alternative professional licensure/ certification requirements, industry standards, the emergence/ authorization of career-training programs, and the economic returns to these programs across fields.

Explore whether short-term educational offerings open access to public state higher education systems.

With the proliferation of non-degree short-term programs in the private sector, many wonder if and how these new programs will affect the business of public colleges. While this report provides an overview of the authorization process of alternative educational programs, we are also conducting a complementary study on how state public higher education systems can effectively develop policies around micro-credentials and then subsequently implement policies. We use the SUNY System in New York as an exemplar for how such policies could be developed. Through interviews with members of the system's Micro-credentialing Task Force and individuals charged with implementing the policies on their respective campuses, we aim to provide recommendations for how state public higher education systems can develop micro-credentialing policies and implementation procedures.

Understand how short-term educational programs promote or inhibit equity.

Short-term, career oriented programs appeal to a wide range of students. Future research should examine the extent to which these programs are helping underserved populations access higher education, both at this individual institutional level and beyond. These programs have the potential to open access to postsecondary education by providing affordable alternatives to the traditional college pathway. Whether or not students from a variety of backgrounds are served by these programs and eventually pursue traditional postsecondary degrees remains an unanswered question.

CONCLUSION

As career-training programs adapt to changing labor markets, industry-hiring norms, change as well. It is simply not the case that a traditional college degree is required to secure a job in some industries, yet almost every field and industry require credentials to demonstrate one's skills. Career schools have always been seen as short-cycle occupational-oriented training programs geared towards securing a job. Short-term career training programs are challenging the assumptions of what it means to receive a credential, as well as what it means to be considered a "college." Programs such as micro-credentials that allow for the greatest flexibility and professional relevance, will appeal to some students previously uninterested in traditional higher education.

States legislatures and authorizing agencies face challenges in deciding which new institutions will offer a "quality" educational experience for their citizens. Interviews from state leaders at agencies/organizations, including representatives from

authorization agencies, other public higher education system offices, and private organizations (e.g., bootcamp providers, a digital badge platform provider) in five states, reveal several shared challenges in the approval process. Our recommendations highlight the data needed to evaluate credential quality and the importance of encouraging collaborations across state agencies and public/ provide educational providers. Effective collaboration depends on how nimble and effective colleges and universities are in authenticating and recognizing postsecondary learning wherever it occurs. As underscored by participants in our study, the COVID-19 pandemic has sparked considerable change and innovation in the higher education sector, making it an opportune time for higher education institutions to evaluate their offerings and to facilitate collaboration toward improving educational opportunities for all.

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