Research Report

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RESEARCH REPORT

Noncredit Career and Technical Community College Programs as a Bridge to Employers: Report on NYC Region Study

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Noncredit community college programs provide an important route for workforce development. They offer affordable and accessible short-term training options for individuals seeking access to middle-skills jobs. Absent the burdens of accreditation standards, they can respond nimbly to local labor market needs. However, they can also be varied and confusing, and despite the high volume of students that they serve, they are an underexamined area in higher education. This study examines noncredit programs in the New York City labor market to determine how schools align noncredit offerings to the labor market, focusing on credential design, competencies, and market processes. It pursues a push–pull design through a combination of document review and interviews with school leaders and employers and introduces quality taxonomy for understanding employer engagement in individual programs. Implications for students, programs, schools, and employers are explored.

The executive summary for this report can be downloaded at https://www.ets.org/Media/Research/pdf/Executive_Summary_RR-22-09.pdf

Background

Postsecondary career and technical education (CTE) is a major access point for underserved populations seeking postsecondary credentials, a livable wage job, and career advancement (Haviland & Robbins, 2021). As requirements for middle-skills jobs become increasingly complex, CTE is a pathway that has much to recommend it: It is typically quicker and more affordable than a straight-to-bachelor's pathway, and in well-designed programs, it is aligned with labor market demands and can be part of a pathway that leads to further higher education (Haviland & Robbins, 2021). While outcome data for noncredit postsecondary education are varied (Sykes et al., 2014), by some estimates, these programs account for roughly 40% of community college students, and more than half of certificates that can be achieved in fewer than 2 years are earned at public community colleges (Phillippe & Tekle, 2016). These are often earned in noncredit programs, which are not as constrained as their credit-bearing counterparts and therefore can respond more nimbly to local labor market demands.

However, these routes are not without their challenges. High-quality credentials should, ideally, be transparent, accessible, affordable, stackable, portable, and aligned to the labor market. Paradoxically, one of the strengths of noncredit programs, their responsiveness to employer or market-based training demands, risks becoming a limitation to livable wages and purposeful employment if the needs of the learner and the employer are not carefully balanced. Students need high-quality information about their options, and programs need to offer pathways into quality employment and future education. Given the variability inherent in the less-regulated noncredit space, our study is designed to offer foundational knowledge of these programs and how they interact with the labor market as they serve a large and diverse portion of learners in higher education.

Noncredit programs are likely to be vital to retraining efforts as policy makers seek to boost the economy, but there are critical gaps in our understanding of key student–program–employer alignment issues. Given the lack of accreditation standards, programs can vary in structure and quality; it can be unclear whether they truly align to the labor market and employer needs and how employers can best engage with them. In the worst-case scenarios, students can waste time and resources on programs that do not improve their career trajectories, while employers continue to experience skill gaps

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that leave good jobs unfilled. We need better information on the skills and credentials noncredit programs offer, how these skills and credentials are aligned to employer expectations, and how employers value the programs to determine best practices for employer engagement and labor market alignment. As the government invests in retraining via CTE, it is critical to ensure that schools design and implement programs that help students match their skills to the job market. This effort can also help employers to close critical skills gaps and the economy to flourish.

To help build this knowledge base and support strong labor market alignment for these important noncredit CTE programs, the Center for Education and Career Development at ETS has undertaken the Noncredit Community College CTE as a Bridge to Employers (CTE Bridge) study. The study examines the landscape of noncredit education to understand existing programs, how they are structured, and how the schools engage with local labor markets to ensure that their programs offer market-relevant skills and credentials. This study triangulates program coding, interviews with school leaders, and interviews with employers to explore how schools structure noncredit programs and how they meet market needs. We follow a push–pull design to study the connection between CTE noncredit program credentials and indicators of work readiness (e.g., industry standards, certifications, employer engagement) and employer attitudes and behaviors (e.g., how they value CTE programs, how this affects their hiring practices). On the *push* side, we examine course and program offerings, building case studies around a set of schools in selected labor market regions. On the *pull* side, we conduct interviews with both school representatives and employers to determine market processes—how schools align their programs to local markets and how employers experience these efforts.

This report presents the pilot of our study, an examination of the New York City labor market region, which we use to lay the foundation for future labor market studies. We began with a document review of noncredit catalogs to determine credential design and availability. Using this information about the programs, we designed and conducted semistructured key informant interviews with school administrators and staff as well as local employers. We have identified key issues related to the major stakeholders in this system: learners, programs, schools, and employers.

Noncredit Programs and CTE

This study is centered on noncredit courses and programs at community colleges. *Noncredit courses* can serve a variety of purposes for community college learners, from personal interest and development (e.g., a harmonica course or a basic computer skills course for seniors) to professional development. In some cases, it can be difficult to discern which is which. For example, a floral design course may be pursued as a hobby or it may lead to a professional certificate. For that reason, we examined both individual noncredit courses, casting a broad net to include any courses offered by continuing education (e.g., Basic Floral Design, which is targeted to hobbyists and florists alike), and a more targeted net for noncredit credentials, which are more often geared toward professional development (e.g., a floral design certificate, geared toward professional florists, which includes the Basic Floral Design course, 10 elective courses covering advanced techniques in floral arts, and the presentation of a portfolio and completed floral design to a faculty panel).

The course-based approach also captures courses that students may use to "pick up" a certain skill set that may be useful at work, even if there is no specific credential attached to it. Examples of this include courses like Starting a Nonprofit, Building Teams That Work, Strategies for Developing Effective Presentation Skills, or Hiring the Right Employee for Your Small Business.

We define *noncredit programs* as courses or sequences of courses that (a) do not offer any college credit to the student without special after-course processes (i.e., advertised pathways to credit were not disqualifying), (b) lead to a formal credential (e.g., certificates, preparation for licensure or industry exams), (c) primarily target work-related skills (i.e., noncommercial driver's licenses, basic CPR courses, and similar "life skills" programs were excluded), and (d) are open to the community that the college serves (i.e., we have excluded contract trainings).

Noncredit programs are an important part of many community colleges' portfolios, which have grown in recent years (Jacobs & Worth, 2019). While they represent around 40% of community college enrollments (Phillippe & Tekle, 2016), they are generally considered "hidden" or "shadow colleges" in comparison to their more visible credit-bearing counterparts and often siloed from the credit side of the school (Jacobs, 2019). Noncredit programs are typically responsive to the labor market, quick and affordable compared to their credit-bearing counterparts, and serve a large and diverse set of learners. However, they are also part of a broader universe of credentialing that is often uncoordinated, is quite varied, and can be confusing for students and employers alike (Van Noy et al., 2008, 2019). Furthermore, while they tend to serve

adult learners and students from disadvantaged socioeconomic backgrounds, more than half of students drop out of college after their initial term (Xu & Ran, 2020). Recognizing quality in these programs is a critical step toward serving these learners more effectively and building pathways to meaningful career development.

It is important to note that noncredit departments can, and often do, tailor offerings to specific employers (e.g., contract trainings and other corporate programs). In these cases, employers are typically requesting training services for their incumbent workers and may even have the school deliver the courses at the employer's facility. In these cases, training is clearly aligned to employers' needs, as the employers are commissioning it. For this study, we focus solely on noncredit programs that are offered more broadly to the public (i.e., trainings listed in public course catalogs). These programs may serve students seeking to upskill within existing careers or to acquire the skills necessary to gain entry to a new career. As the programs are not directly tied to incumbent worker trainings, the relationship between program design and employer needs is not as obvious; our work is to determine how well noncredit programs align to their local labor markets.

Noncredit Programs Serve a Large and Diverse Set of Learners

Community colleges are often unsung heroes in our education system, serving many learners and meeting the needs of many disadvantaged populations. In the workforce, nearly one-third of U.S. workers' education levels are in the space between a high school diploma and a bachelor's degree (Carnevale et al., 2018, p. 12).

Noncredit programs offer important contributions to community colleges' missions to serve their communities. They can be completed more quickly than associate's degrees, allowing learners to achieve recognition for their skills and enter the labor market more quickly. They are popular—community college enrollments comprise roughly 60% credit and 40% noncredit students (Phillippe & Tekle, 2016).

Certificates and associate's degrees are a far more diverse route than their 4-year counterparts, serving disproportionately large populations of Black, Latinx, low-income, and older students (Carnevale et al., 2018, pp. 16–19). Noncredit programs in particular are primarily populated by adult learners and students with a low socioeconomic status (SES; Xu & Ran, 2020) as well as by learners older than 40 years, who tend to go the community college route (rather than for-profit programs) for vocational certificates (Phillippe & Tekle, 2018). Learners arrive to noncredit programs via a variety of routes, including, among others, first-career preparation (e.g., students entering immediately after high school), retraining for a new career, or upskilling for an existing career pathway (Haviland & Robbins, 2021, p. 10). In short, noncredit programs are diverse along several dimensions and have the potential to serve as a catalyst for improving equality in education and employment.

Noncredit Programs Are Well Positioned to Respond to the Labor Market

These programs are also very nimble when compared to their credit-bearing counterparts, which is a great asset in responding to emerging labor market opportunities and the needs of local employers. Whereas it can take years to introduce new programs on the credit side due to accreditation standards and faculty processes, schools can very quickly implement noncredit programs and even tailor programs to specific employers; for example, a school may train students on specific manufacturing equipment that the employer uses on its shop floor. However, noncredit programs are also often developed by nonfaculty sources, and many can be taken remotely such that the students have very little engagement with the school or its faculty and staff, which may create quality issues.

It is important to understand noncredit program quality, as noncredit programs are likely to loom large in plans to restart the economy after the COVID-19 pandemic (Barshay, 2020). These programs tend to be accessible to dislocated workers with unemployment benefits, allowing potential students to use Individual Training Account funds to pay for the program as well as being discoverable to students through Eligible Training Provider Lists (Nisbet et al., 2017). Many can be completed in less than a year. If a large swath of workers needs to retrain, this is where they will do it; during the Great Recession/Recovery period from 2006 to 2011, surging higher ed. enrollment was largely concentrated in community colleges. Community colleges saw a 33% increase in enrollment (Census, 2018), much of which was due to adult learners. While pandemic-era community college enrollments saw a precipitous decline (Kramer et al., 2020; National Student Clearinghouse Research Center, 2021; St. Amour, 2020a, 2020b), these institutions are the targets of proposed infrastructure investment (White House, 2021), and with the improving economy, loosening pandemic restrictions, and growing federal investments, they are likely to experience a resurgence in enrollment on both sides of the house.

Furthermore, there is increasing interest in credentials outside of the traditional degree; public institutions of higher education have more than doubled the number of certificates below the bachelor's degree conferred over the past two decades (U.S. Department of Education, 2020). There is a growing movement to expand Pell funding to short-term credentials that can be completed in as little as 8 weeks, a move that has sparked great debate but could increase access to these nontraditional pathways (Lederman, 2021; Sanchez, 2021).

However, the Universe of Noncredit Credentialing Can Be Varied and Confusing

Although the flexibility of noncredit programs is an asset for responding to employer needs, absent oversight, there can be variation in noncredit programs, their value, and the marketability of their graduates. The landscape can be confusing for students and employers alike, as noted in a recent report by the Rutgers Education and Employment Research Center (Van Noy et al., 2019):

> The diverse array of [noncredit] credentials makes it incredibly difficult for both students and employers to compare and assess the quality of any given program. There is no single set of standards, no mechanism or system to help workers, employers, policymakers, and educational institutions to define quality or to measure it. (p. 1).

Efforts are under way to identify and document elements of program quality throughout the credentialing universe, from secondary through to postsecondary levels. Examples include the nonprofit Credential Engine that aspires to document the entire universe of credentials (and recently reached more than 1 million credentials — a testament to the vastness of this space) and the Lumina Foundation and Corporation for a Skilled Workforce's 2016–2018 Connecting Credentials campaign, which sought to bring key players and resources together to call attention to the fragmented landscape of credentialing. These catalogs are important tools for understanding the scope and variety of offerings. We must also wrangle with quality. Recently, the Rutgers Education and Employment Research Center offered a conceptual model for understanding nondegree credentials (Van Noy et al., 2019) that identified key factors and related issues to consider in evaluating nondegree credentials. This model demonstrates how the desired outcomes for noncredit education for individuals (better employment, increasing education, and social benefits) and society (including benefits for both employers and broader society) are the result of credential design, competencies, and market processes. In other words, if we want to improve individual and societal outcomes with nondegree credentials such as are offered in noncredit programs, we need to focus on these three areas and how they can be strengthened.

We draw on this model in our examination of noncredit programs and their alignment to labor markets. We focus on key elements of credential design, competencies, and market processes, as described in what follows.

Methods

The study design utilizes a mixed methods approach, drawing a sample of NYC-area community colleges from a nationally representative sample of community colleges in the United States. We began by examining the NYC labor market sample community colleges, focusing on noncredit programs to determine how they designed credentials and how they worked to align their programs to market needs. To this end, we conducted a document review of a sample of noncredit course catalogs, analyzing at both the course and program levels. We conducted in-depth interviews with administrators and staff at three different schools in the NYC labor market, including their workforce leads and administrators, to understand the stories behind the program offerings and how noncredit programs engage with area employers.

Finally, to determine how employers view noncredit programs and how they use community college–educated workforces, we conducted a parallel study of employers with interests in the IT and health care industries. IT and health care are two prominent industries in the NYC labor market region, and both feature prominently in the noncredit catalogs in the region. There are many subbaccalaureate certificates and degrees in these fields, often regulatory or industry based, and also bachelor's and graduate degrees in these fields. Given this range of options, these fields appear ripe for career pathway development using certificates as on-ramps.

We discuss a labor market approach, sample selection, document review, and interview processes in turn.

A Labor Market Approach

Labor markets are local labor markets; they are anchored in cities and include the surrounding commutable area, and they are often referred to as regional labor markets. The CTE Bridge project and a companion project, CTE Decision-making, were designed around labor market regions explored in a recent report by the Fordham Institute, "How Aligned Is Career and Technical Education to Local Labor Markets?" (Sublett & Griffith, 2019). This report compared local secondary-level CTE course-taking patterns to local labor market opportunities. Taken together, the CTE Decision-making project and CTE Bridge project offer insights into student, school, and employer experiences with these labor markets. The CTE Decision-making project explores young adults' attitudes to CTE using survey data pulled from five labor market regions: Atlanta, Detroit, Houston, Los Angeles, and NYC. The CTE Bridge project is designed to build toward these regions. This pilot of the NYC labor market will soon be followed by a comparison project in the Atlanta labor market. These two areas offer useful contrasts in labor markets, state policies, and even experiences with COVID-19.

Sample Selection

To understand how the NYC labor market functions with respect to noncredit program offerings, we needed to identify a representative sample of community colleges. We drew on the Integrated Postsecondary Education Data System (IPEDS) for this purpose. The selection of schools for our sample was the result of a multistep process in which we identified the pool of community colleges in the IPEDS database, selected a nationally representative sample from that pool, developed a regional NYC sample, and recruited two schools to serve as pilot case studies. This sampling plan was important to the project's long-term plans to develop a nationally representative data set of community college course catalogs, which would be the first of its kind and offer insight into the nature of noncredit programs, which are so thinly regulated and often lack standardization.

Identifying Integrated Postsecondary Education Data System Community Colleges

Community colleges are not specifically identified in the IPEDS database, so we used several key IPEDS variables to determine the national pool of schools. We selected two categories of the variable institution level: "degree granting, associate's and certificate" and "degree granting, not primarily baccalaureate or above." Furthermore, we selected public colleges with open enrollment that were *not* tied to major state universities as recorded in the IPEDS database and were part of the United States (we included states and the District of Columbia only and excluded outlying territories). This resulted in 1,022 institutions in the larger national pool of community colleges.

Selecting a Nationally Representative Sample

From this broader pool, we selected a nationally representative sample (Table 1). To begin, we designed a stratification sampling plan around several metrics: locale (rural, town, suburban, and urban), region (four U.S. Census regions: Northeast, Midwest, South, and West), and institution size (student enrollment ranges of fewer than 5,000, 5,000–10,000, and more than 10,000). This was the basis of a $4 \times 4 \times 3$ stratification plan, with a total of 48 cells. Using SPSS's stratified random sampling tool, three schools were selected from each cell, but some cells did not have values. These cells were the schools with more than 10,000 enrolled students, for example, there were no schools of this size in the rural Midwest. The result was a total of 125 community colleges in the nationally representative sample.

Developing a Regional Sample for the New York City Labor Market

We built the NYC-specific regional study to build toward a national data set, while also accomplishing a regionally representative pilot. To that end, we pulled eight schools from the national sample that were in the NYC labor market region (6% of the overall sample), added to an initial test case for a total of nine schools in our sample for program coding. We conducted additional course-level analyses on two surplus large schools (one urban, one suburban) as we were in the process of recruiting case study schools. This led to a course-level sample of 11 schools (the local pretest school, the 8-school sample, plus two additional large schools).

Table 1 Profile of Schools in Nationally Representative Sample of Community Colleges

	n	% of total sample
Region		
Northeast	29	23
Midwest	30	24
South	31	25
Rocky Mountains/Southwest/Far West	35	28
Locale		
Urban	36	29
Suburban	36	29
Town	26	21
Rural	27	22
Size		
<5,000	48	38
5,000–9,999	46	37
>10,000	31	25

Note. *N* = 125 schools. Data are from the IPEDS data set.

Table 2 Profile of Schools in New York City Labor Market Sample

School	No. of students	Locale
Large Urban A[a]	>10,000	Urban
Large Rural	>10,000	Rural
Large Urban B	>10,000	Urban
Midsize Urban	5,000–9,999	Urban
Midsize Rural	5,000–9,999	Rural
Midsize Suburban A	5,000–9,999	Suburban
Large Suburban B	>10,000	Suburban
Midsize Suburban B	5,000–9,999	Suburban
Large Suburban A[a]	>10,000	Suburban

[a] Case study school.

Community colleges regularly publish course catalogs, which are often physically mailed to surrounding areas to communicate their offerings to the local community. Many also publish separate catalogs featuring noncredit or vocational offerings, which are often run as a separate school-within-the-school. To avoid the influence of COVID-19 on the course sample, we searched for spring 2020 course catalogs. Although COVID-19-related shutdowns began in March 2020, schools set their offerings in advance—in essence, the spring 2020 catalogs were the final course catalogs of the pre-COVID-19 era. However, given the timing of our catalog search, some schools had already issued the next semester's course catalog and removed the spring 2020 catalogs from their websites. For schools that did not have these catalogs available online, we reached out directly via email. When we were unable to locate a catalog after online searches and outreach to schools, we returned to the larger community college sample in the IPEDS data, which included 37 NYC labor market schools, and replaced the schools with a school of the same profile (same locale and institution size).

Table 2 provides the profile of these schools. The NYC pool of 37 schools skews more heavily toward urban (*n* = 15) and suburban (*n* = 15) schools. The NYC pool also skews more heavily toward large schools (more than 10,000 students; *n* = 12) and midsized schools (5,000–9,999 students; *n* = 20 schools). The study sample also includes a large proportion of these schools. Schools from both New York and New Jersey are included in our sample.

Document Review

Having secured our nationally representative sample of colleges and a regional subset, the next tasks were to determine the structures of noncredit programs available to students and to understand credential design factors. To accomplish this, we conducted a review of course and program offerings in the NYC labor market region. We analyzed these catalogs at two levels: (a) a course-level analysis and (b) a program-level analysis. Courses are the building blocks of any college program. In noncredit programming, individual courses may hold value in the employment market even without credentialing if

they impart a skill, for example, an aspiring nonprofit administrator may take a course that teaches social media outreach, expanding their portfolio of skills, whether or not that course leads to a certificate or industry credential. In the noncredit space, these courses do not apply toward degrees; the value of taking courses is the ability to acquire knowledge and skills. As noted earlier, for this research, we defined a noncredit program as any course or sequence of courses designed to confer a credential and for which students do not automatically receive college credit.[1] Whereas courses confer knowledge and skills, programs confer knowledge, skills, *and credentials*.

Course-Level Analyses

Course-level analyses lend insight into the overall nature of noncredit programming, allowing us to understand the options and experiences available to students in this space. Unfortunately, in keeping with findings by O'Banion and Miles (2021), the catalogs varied in availability, format, and level of information; while we used a web-scrape process to analyze each, we necessarily used several processes to pull the courses off each course catalog in preparation for analysis. If the course catalog was in an online, HTML format, we used Python to web-scrape the information and transfer it into an Excel file. If the course catalog was a PDF or Word document, we exported the information to a text file. As the text files would have artifacts of the original file, such as irregular spacing (used to align objects or where images used to be), we then cleaned each text file and formatted the course info to provide parallel information. The text files were then run through a Python code to parse the text and pull out the following categories of information: class name, class number, class description, number of credits (regular and/or continuing education credits), cost, dates offered, times of day at which the class meets, number of class sessions, instructors, and days of the week on which the class meets; any additional information provided was stored under notes.

This database also enables us to work backward from the program-level analyses to understand the costs and experiences tied to multicourse programs, a topic for future research.

Program-Level Analyses

Program-level analyses allowed us to determine credential availability and design and offered insight into the level of structured engagement between students and employers. The program-level coding followed the noncredit program categories and definitions from the Rutgers Education and Employment Research Center's conceptual framework (Van Noy et al., 2019). The coding rubric was structured to reflect program design (e.g., program prerequisites, single- vs. multi-course design, capstone testing, pathways to credential), outcomes (e.g., subbaccalaureate for-credit certificate, noncredit certificate, industry certification, occupational or professional licensure, apprenticeship, badge), and employer contacts (e.g., externships, internships, apprenticeships).

The coding of the noncredit programs was completed by a team of coders, in parallel with the course-level coding done through the web-scraping process. After the initial training on the coding categories, team coders participated in follow-up discussion of categories' definitions and application of the coding rules. Team members brought up inconsistencies in noncredit program descriptions across catalogs, and the team resolved coding disagreements where they occurred. All codes were verified by a second coder.

For the purposes of this project, we focused on the noncredit program offerings in spring 2020. This has the historical benefit of being the last set of catalogs to be designed in a pre-COVID-19 era; although we were advised that some of the offered programs underwent changes in scheduling as the spring semester progressed and some classes did not run due to low enrollment, these catalogs represent the last of the "old normal" semester offerings.

Interviews

We targeted four schools for in-depth key informant interviews with school administrators, including one large urban school, one large suburban school, one midsized urban school, and one midsized suburban school; we were able to secure interviews with key informants at all but the midsized urban school.[2]

The two large schools agreed to participate in a broader case study as well. These schools were comparable in size but represented two very different communities, one suburban and one urban. Further community differences were revealed by their DataUSA county profiles; the first was located in an affluent county, with a community that was roughly half

White, 13% Black, and 12% Hispanic. The median age of the county was 40.9 years, and the median household income was just under $100,000. However, there was a poverty rate of nearly 10%, and one-fourth of the residents were foreign born. The economy was driven by health care/social assistance; educational services; and professional, scientific, and technical services. In contrast, the second school was located in a larger urban county that was majority minority (56% identified as Hispanic, 29% as non-Hispanic Black). More than one-third of the population was foreign born, and 6 in 10 spoke a non-English language. The county skewed younger, with a median age of approximately 34 years, and lower income, with a median household income of approximately $38,500 and a 29% poverty rate. The most commonly held jobs were office and administrative support occupations, health care support occupations, and sales and related occupations.

For these case studies, we requested three interviews (an executive-level administrator and two noncredit administrators or staff). In both case study schools, we spoke with the academic provost and two noncredit administrators. We also requested connection with exemplary employer partners. However, schools were hesitant to burden their partners and jeopardize their relationships at a difficult moment due to the pandemic; rather, we pursued a separate employer study in two key industries: health care and IT ($n = 6$ interviews). The health care employers interviewed represented a major network of hospitals and health care providers, while the IT employers represented a major international professional services firm. For both of these sites, we requested access to human resources (HR) managers and hiring managers to discuss their experiences with hiring community college or CTE graduates. Both qualify as large organizations and have multiple sites throughout the United States. To understand the perspective of smaller businesses, we also interviewed one labor market intermediary operating specifically in the NYC labor market.

Interviews for the case studies were conducted in fall and spring 2020 via Microsoft Teams and lasted approximately 45 minutes each. The interviews followed a semistructured guide that touched on program structures, employer engagement, labor market alignment, and the ways COVID was altering the landscape. Interviews were transcribed and coded in NVivo by research team members who were trained and compared codes, discussing to resolve any inconsistencies.

Findings

Findings are organized around a push–pull model, where credential design and competencies feature as push factors and market processes feature as pull factors. We examine each in turn.

Push: Credential Design and Competencies

The noncredit credential programs, we examined had varied ways of offering program-level opportunities to prospective students, with catalogs being offered in brochure or interactive format on the schools' official websites. A systematic review of the program-level offerings by school revealed that schools differed in number of programs, program prerequisites, pathways to credit, and program outcomes. They were also varied in terms of offering students opportunities for employer connections, preparation for capstone testing, and types of credentials they offered. In addition to these aspects of the programs, our analyses offer a breakdown of the programs by industry. The program-level differences are summarized in tables and figures showing an overall snapshot of these nine community colleges in the NYC region. While these analyses reflect the sizes and demographics of the local communities the community colleges serve, they also demonstrate the schools' abilities to respond to local employer markets.

Course Offerings Tailored to Adult Learners

Course-level analyses allow us to assess the accessibility and affordability of noncredit learning, and to consider structural barriers and facilitators to taking coursework. Table 3 demonstrates the availability of courses, costs, and timing factors. In several schools, some very expensive courses pulled the means upward, with top ranges approaching $5,000; these were most often credentialed health care courses that were often much longer than the average college course (they could span several months) but still offered as a single course rather than a sequence of courses. The average cost per course across all schools was $413.91; individual courses ranged from $20 to $4,955.

Although many noncredit courses were offered across the board, at Large Urban A (a case study school), the offerings were quite low—18 courses, versus 113 and 220 at the other large urban schools, respectively. In speaking with school representatives, we learned that the school was early on in an evolution from transfer only to a model that integrates

Table 3 Profile of Noncredit Course Offerings by School in New York City Labor Market Study

School	Number of noncredit courses offered	Mean cost per course (USD)	Cost range per course (USD)	Course timing (percentage of offerings)				
				Business hours[a]	Evening hours[b]	Weekends only[c]	Online only	Unknown
Large Urban A[d]	18	385.17	20 – 1, 100	0	44	44	11	0
Large Urban B	113	1, 075.00	35 – 4, 995	0	19	23	43	14
Large Urban C	220	427.64	15 – 2, 600	31	37	32	0	0
Large Suburban A[d]	459	236.00	20 – 2, 200	21	35	36	0	8
Large Suburban B	209	204.38	25 – 1, 795	10	44	46	0	0
Large Suburban C	72	128.19	36 – 499	0	0	0	100	0
Large Rural	127	388.57	39 – 4, 000	10	54	7	0	28
Midsize Urban	196	518.07	0 – 3, 550	30	28	38	0	4
Midsize Suburban A	154	394.86	35 – 3, 499	25	42	31	0	2
Midsize Suburban B	137	683.23	0 – 4, 954	42	41	15	0	4
Midsize Rural	112	571.63	65 – 3, 995	6	59	13	14	8
All schools	1, 817	413.91	15 – 4, 995	20	37	29	8	6

[a]Classes start before 5:00 PM on weekdays. [b]Classes start after 5:00 PM on weekdays. [c]Classes offered only on the weekends. [d]Case study school.

more noncredit vocational offerings. Large Suburban A (also a case study school) offered the highest number of noncredit courses at 459 and had a far more extensive strategy implemented for noncredit offerings.

The bulk of program offerings occurred during nights and weekends, allowing students to access these programs while potentially working full time during the day. Furthermore, some schools included online-only offerings, even prior to pandemic-related closures and remote learning. Several of the schools that had zero online offerings of their own were contracting with services, such as Ed2Go,[3] to offer programs remotely. The course analyses demonstrated that schools were offering courses that were compatible with adult learners, who have competing demands and responsibilities and often benefit from more flexible scheduling and location arrangements. Future analyses can explore the costs and hours associated with courses by industry and how these vary by school.

Program Choices

Our program-level analyses found a variety of options for students seeking credentials, both in single- and multi-course programs. Table 4 offers a summary of the noncredit programs in the nine schools where we conducted program-level analyses. Most of the noncredit credentials offered could be acquired within a single course, although those course hours may be longer than is often associated with a typical three-credit college course. Similarly, most schools have very few prerequisite requirements, often only looking for a high school diploma. Some schools were very explicit in requiring basic skills or a high school diploma or equivalent as a prerequisite for their programs, but many programs listed no such requirement. Most schools offered few programs with more advanced prerequisites, such as a specific course, degree, or licensure, although Large Urban A and Large Suburban A (the two case study schools) had over 20% of their programs in these more advanced categories.

Although it was unusual, a handful of programs advertised a pathway to credit, giving students extra structure in their career pathways. This is a nascent movement in community college reform; depending on the success of today's programs, we may see more in the future. In general, the institutions in our sample were in the early stages of aligning noncredit and credit programs and forming noncredit pathways, for instance, in our interviews with school leaders, we discovered that Large Suburban A had built out a few pathways to credit already in specific fields like health care and advanced manufacturing, retrofitting a robust catalog to build these pathways; however, these pathways were not advertised in the course catalog. Large Urban A was just beginning to develop its noncredit programs; interview respondents reported that they were planning to build them so that they had pathways to credit embedded from the beginning.

Several challenges were reported in terms of developing noncredit pathways. Getting buy-in and generating interest from stakeholders, such as faculty, administrators, department chairs, employer partners, and even students, were reported to be very time consuming in terms of the number of conversations and labor hours required. One noncredit dean stated

Table 4 Profile of Noncredit Credential Offerings by School in New York City Labor Market Study

School	No. noncredit credentials offered		Programs with prerequisites (%)		Advertised pathway to credit (%)
	Single course	Multicourse	Basic skills/HS diploma or equivalent	Course/degree/license	
Large Urban A[a]	10	2	16.70	25.00	0
Large Urban B	27	2	17.20	17.20	0
Large Suburban A[a]	34	8	21.40	21.40	0
Large Suburban B	7	6	46.20	0	0
Large Rural	62	12	36.50	6.80	2.70
Midsize Urban	34	11	53.30	17.80	4.40
Midsize Suburban A	21	10	41.90	12.90	0
Midsize Suburban B	26	15	14.60	14.60	4.90
Midsize Rural	18	13	71	6.50	9.70
Total counts	239	79			

[a] Case study school.

that initiating the conversations to get everyone on the same page was even more difficult than actually implementing the pathways. This is because, as multiple respondents noted, there is a tendency for the credit and noncredit sides to function as independent silos, which makes working together more difficult, as each side is unaware of what the other side is doing.

Respondents observed various reactions toward aligning noncredit and credit programs within the schools. For instance, some stakeholders felt developing noncredit pathways would threaten credit programs and take students away, while others felt having noncredit pathways would serve as a pipeline to the credit programs and would create learners who would then want to continue on to the credit side, who otherwise would not have done so. Stakeholders who supported the creation of such pathways argued that most noncredit learners are second career or seeking upskilling, and many would not elect to pursue a credit pathway even if it were available. Thus, there was little threat of taking students away from the credit side. One administrator from Large Suburban A noted,

> We always talk to our colleagues in academic and in credit programs for them to understand that this is not an either/or, that there's an opportunity for individuals to get on a pathway through noncredit and then continue if it works for them.

Respondents discussed several ways in which noncredit pathways were beneficial to students. One vice president in noncredit mentioned that noncredit pathways provide a pipeline for students to move from noncredit to credit to 4-year and even to graduate programs. Without such a pipeline, students might be less likely to complete a degree. Another respondent noted that having noncredit-to-credit pathways adds credibility to noncredit programs that are already of good quality. It was also noted that noncredit pathways would be less expensive for students. Without such pathways available in community colleges, students may be pushed into more expensive private schools to pursue their next level of education, resulting in more financial debt.

Industries

We conducted additional analyses using the CTE industries described in the Fordham Report (Sublett & Griffith, 2019). Table 5 and Figure 1 provide snapshots of the number of noncredit programs that schools offer by industry, as well as the percentages that these programs represent as a proportion of all noncredit programs in these schools. Sublett and Griffith noted that the NYC course-taking and labor market are misaligned in jobs representing both ends of the wage spectrum. There is a level of course taking in higher wage CTE occupations disproportionate to local job opportunities (e.g., IT and science, technology, engineering, and mathematics [STEM] fields represent 17% of course taking but only 3% of employment) and also in lower wage CTE occupations (hospitality and tourism and transportation, distribution, and logistics represent half of concentrations but only 18% of employment). Four industries represent half of NYC employment, according to the Fordham Report—business management and administration (20%), marketing (11%), health science (10%),

Table 5 Program Offering in Key Industries, as Percentage of Noncredit Credential Offerings in New York City Labor Market Sample

School	Programs by industry,[a] *n* (%)															Total/school
	ANFR	AC	AV	BM	ED	FIN	HS	HOSP	HUM	IT	LAW	MAN	MARK	STEM	TRAN	
Large Urban A[b]	0 (0.00)	0 (0.00)	1 (8.30)	1 (8.30)	3 (25.00)	0 (0.00)	6 (50.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	1 (8.30)	0 (0.00)	0 (0.00)	12 100
Large Urban B	0 (0.00)	0 (0.00)	0 (0.00)	4 (13.80)	0 (0.00)	0 (0.00)	7 (24.10)	0 (0.00)	1 (3.40)	9 (31.00)	8 (27.60)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	29 100
Large Suburban A[b]	0 (0.00)	5 (11.90)	7 (16.70)	2 (4.80)	1 (2.40)	4 (9.50)	12 (28.60)	1 (2.40)	0 (0.00)	2 (4.80)	0 (0.00)	3 (7.10)	4 (9.50)	1 (2.40)	0 (0.00)	42 100
Large Suburban B	0 (0.00)	0 (0.00)	0 (0.00)	4 (30.80)	0 (0.00)	0 (0.00)	6 (46.20)	0 (0.00)	1 (7.70)	0 (0.00)	0 (0.00)	0 (0.00)	2 (15.40)	0 (0.00)	0 (0.00)	13 100
Large Rural	3 (4.50)	6 (8.20)	4 (5.50)	13 (17.80)	3 (4.10)	0 (0.00)	17 (23.30)	3 (4.10)	0 (0.00)	21 (27.40)	1 (1.40)	0 (0.00)	2 (2.70)	0 (0.00)	2 (2.70)	74 100
Midsize Urban	3 (6.70)	5 (11.10)	0 (0.00)	1 (2.20)	2 (4.40)	0 (0.00)	23 (51.10)	0 (0.00)	1 (2.20)	5 (11.10)	1 (2.20)	1 (2.20)	0 (0.00)	3 (6.70)	0 (0.00)	45 100
Midsize Suburban A	0 (0.00)	0 (0.00)	1 (3.20)	12 (38.70)	0 (0.00)	0 (0.00)	9 (29.00)	0 (0.00)	0 (0.00)	6 (19.40)	0 (0.00)	2 (6.50)	0 (0.00)	0 (0.00)	1 (3.20)	31 100
Midsize Suburban B	0 (0.00)	3 (7.30)	0 (0.00)	8 (19.50)	2 (4.90)	2 (4.90)	12 (29.30)	0 (0.00)	0 (0.00)	6 (14.60)	2 (4.90)	1 (2.40)	1 (2.40)	0 (0.00)	4 (9.80)	41 100
Midsize Rural	0 (0.00)	0 (0.00)	0 (0.00)	3 (9.70)	1 (3.20)	1 (3.20)	18 (58.10)	1 (3.20)	0 (0.00)	5 (16.10)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	2 (6.50)	31 100
Total counts	5	19	13	48	12	7	110	5	3	54	12	7	10	4	9	318

[a] Industry categories include agriculture, food, and natural resources (ANFR); architecture and construction (AC); arts, A/V technology, and communications (AV); business, management, and administration (BM); education and training (ED); finance (FIN); government and public administration (GOV); health science (HS); hospitality and tourism (HOSP); human services (HUM); information technology (IT); law, public safety, corrections, and security (LAW); manufacturing (MAN); marketing (MARK); science, technology, engineering, and mathematics (STEM); and transportation, distribution, and logistics (TRAN). [b] Case study school.
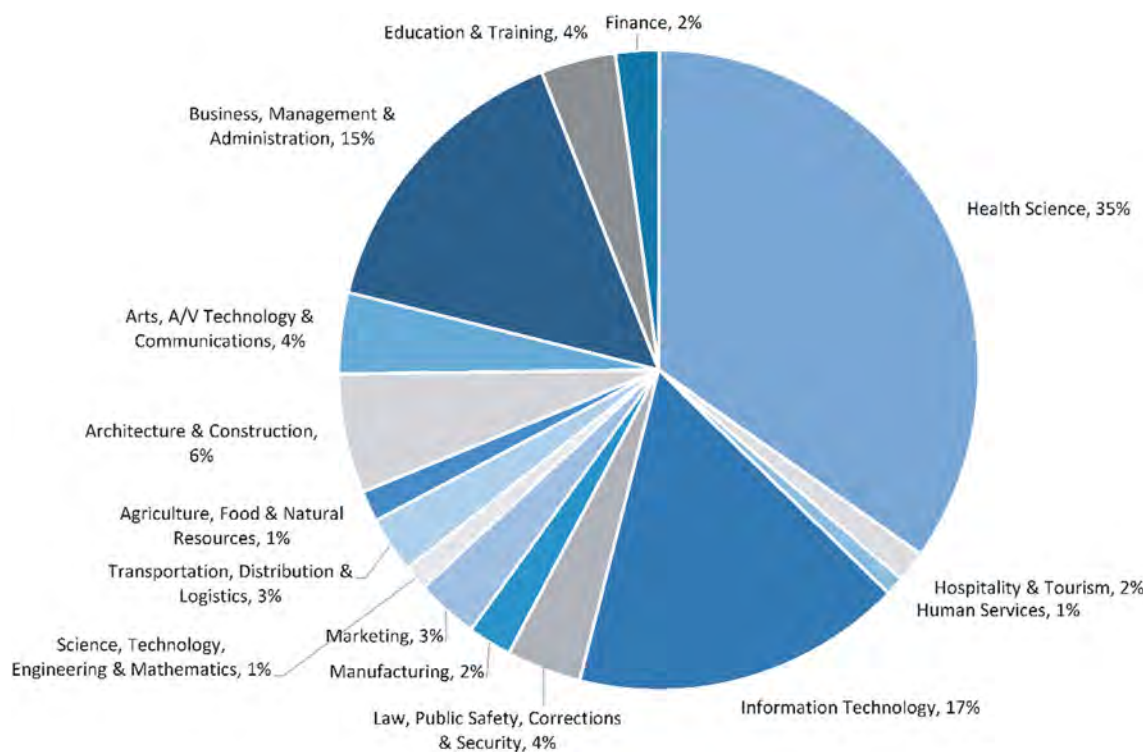
Figure 1 Total noncredit programs in key industries in surveyed community colleges in New York City labor shed.

and hospitality and tourism (10%; Sublett & Griffith, 2019, p. 75)—although they are often underrepresented in CTE course-taking patterns. Regarding these industries, we observed the following in the program offerings:

- In most schools, business management and administration were less represented than its portion of area employment might recommend. If this industry represents roughly one-fifth of NYC area employment, only two schools were in the right ballpark (Large Rural at 17.8% of offerings and Midsize Suburban B at 20% of offerings); two schools were overrepresented in this field, and five other schools were underrepresented.
- Marketing accounts for 11% of NYC region employment per Fordham, but no programs were offered at all in four of the nine schools. T he remaining schools offered one to four programs.
- Hospitality and tourism account for 10% of NYC region employment, but only one-third of the schools offered any program in the field (typically one to three programs).
- Health science was by far the most popular field for offerings. Whereas it represents 10% of employment in this region per Sublett and Griffith (2019), over 20% of the program offerings in every school and over 50% of the offerings in one-third of the schools were in health science.

Credentialing and Competency Demonstration

Noncredit credentials can include a variety of outcomes, such as a noncredit certificate issued by a school, an industry certification, preparation for occupational or professional licensure, and, in very rare cases, a badge or micro-credential. Table 6 outlines the variety of credentials on offer by these schools.

As noncredit programs are not subject to the same external standards as their credit-bearing counterparts (which must answer to accreditation standards), noncredit certificates can be something of a wild card in terms of content and quality. Therefore, third-party credentials, such as industry certification and occupational/professional licensure, are generally considered higher quality credentials (Buckwalter & Maag, 2019; Gallagher & Maxwell, 2019).

Table 6 Noncredit Program Outcomes in New York City Labor Market Sample

	Program, *n* (%)				
School	Noncredit certificate	Industry certification	Occupational/ professional licensure	Badge/micro-credential	Total programs
Large Urban A[a]	3 (25.00)	5 (41.70)	3 (25.00)	0 (0.00)	12 (100.00)
Large Urban B	11 (37.90)	16 (48.30)	2 (6.90)	0 (0.00)	29 (100.00)
Large Suburban A[a]	8 (19.00)	18 (42.90)	15 (35.70)	1 (2.40)	42 (100.00)
Large Suburban B	0 (0.00)	10 (76.90)	3 (23.10)	0 (0.00)	13 (100.00)
Large Rural	24 (32.40)	40 (54.10)	10 (13.50)	0 (0.00)	74 (100.00)
Midsize Urban	11 (24.40)	30 (66.70)	4 (8.90)	0 (0.00)	45 (100.00)
Midsize Suburban A	15 (48.40)	15 (48.40)	1 (3.20)	0 (0.00)	31 (100.00)
Midsize Suburban B	5 (12.20)	34 (82.90)	2 (4.90)	0 (0.00)	41 (100.00)
Midsize Rural	8 (25.80)	22 (71.00)	1 (3.20)	0 (0.00)	31 (100.00)
Total counts	85	190	39	1	318

[a]Case study school.

Table 7 Noncredit Program Outcomes by Industry in New York City Labor Market

	Program outcome (%)				
Career cluster (*n*)	Noncredit certificate	Industry certification	Occupational/ professional licensure	Badge/micro-credential	Total
Agriculture, food, and natural resources (6)	33.3	50.0	16.7	0.0	100.0
Architecture and construction (19)	15.8	31.6	52.6	0.0	100.0
Arts, A/V technology, and communications (13)	53.8	46.2	0.0	0.0	100.0
Business, management, and administration (48)	33.3	58.3	8.3	0.0	100.0
Education and training (12)	25.0	50.0	25.0	0.0	100.0
Finance (7)	0.0	57.1	42.9	0.0	100.0
Health science (110)	22.7	68.2	9.1	0.0	100.0
Hospitality and tourism (5)	0.0	100.0	0.0	0.0	100.0
Human services (3)	33.3	33.3	33.3	0.0	100.0
Information technology (53)	20.8	77.4	0.0	1.9	100.0
Law, public safety, corrections, and security (12)	83.3	16.7	0.0	0.0	100.0
Manufacturing (7)	14.3	85.7	0.0	0.0	100.0
Marketing (10)	30.0	10.0	60.0	0.0	100.0
Science, technology, engineering, and mathematics (4)	50.0	0.0	50.0	0.0	100.0
Transportation, distribution, and logistics (9)	22.2	66.7	11.1	0.0	100.0
Total (318)	27.0	59.7	12.9	0.3	100.0

Noncredit certificates account for roughly one-fourth of all credential offerings across the schools (85 out of 318 programs total). Whereas three of the schools offered one-third to one-half of their programs as noncredit certificates (48% at Midsize Suburban A, 38% at Large Urban B, and 32% at Large Rural), most offered less, and Large Suburban B did not offer any. Rather, schools favored preparation for industry certification (188 programs across schools, at roughly 59% of offerings). Licensures were less popular than noncredit certificates (41 programs across schools, at roughly 13%), but taken together with industry certifications, these third-party credentials accounted for nearly three out of every four offerings.

Table 7 presents the noncredit program outcomes by industry. The fields that resulted in the highest proportion of noncredit certificates were law, public safety, and corrections (83%); arts, A/V technology, and communications (53.8%); and STEM (50%). Two industries featured no departmental certificates: (a) finance and (b) hospitality and tourism. However, these were also two of the industries with the fewest noncredit programs (seven and five programs, respectively).

Roughly four out of five programs in the health science and IT fields, the two industries of focus in this study, resulted in industry certifications or licensures. These were also the top two industries in terms of program offerings, with 110

programs in health science and 53 programs in IT. These industries represent a major proportion of the offerings in non-credit programming (taken together, they are 51% of all offerings) and strong pathways to industry-recognized credentials.

Demonstrating Competencies Through Capstone Testing

To achieve credentialing in noncredit programs, many programs required some form of capstone testing. For this study, we coded any program advertising preparation for a final test, typically from an industry or for licensure, as preparing for capstone testing. Testing at the end of a program and prior to entry or advancement in a field is an important gatekeeping activity for many professions; it can demonstrate subject mastery and is an important indicator of competency. However, it is also a final hurdle for students to clear as they move from training into employment and adds an element of difficulty in ensuring student success.

Given the high percentage of programs offering third-party credentialing, it is unsurprising that roughly 64% of programs in the NYC sample prepare for capstone testing. As Table 8 demonstrates, all schools in the NYC region sample offer some programs that prepare students for capstone testing, though the proportion of programs with capstones varies by school. One hundred percent of Large Suburban B's programs prepare for testing, followed by Midsize Suburban B (83%); our two case study schools, Large Urban A and Large Suburban A (both 67%), also fall in the upper half of the range. Only one school, Large Urban B, featured fewer than half of programs with capstone testing, though even that was close to half of its programs (48%).

Credential Design and the Role of Community Colleges

Our interview respondents offered some reflections on the role of community colleges in preparing workers for today's labor market that were illuminating and gave some insight into the goals and motivations that underlie these credential designs.

According to respondents, community colleges play a few different roles in preparing workers for today's labor market. One role is to help those who desire to circumvent traditional college/education and instead move right into the workforce to provide for themselves and their families. A respondent stated that community colleges are not about

> people studying for the luxurious feeling of getting education. It's traditionally not people who are interested in unique academic subject matter. It's folks who want to work and want to be … stable and contributing members of society.

Another respondent echoed that college is not for everyone and that, additionally, there is "a need to have a prepared workforce that is not all white-collar college educated." Helping such students enter internships and then jobs is a goal for community colleges, the purpose being "to leave them in a better place economically and socioeconomically than they were when they first started."

On the other hand, for learners who may not be ready to enter the workforce but who know little about higher education, community colleges can play a role in providing a variety of socioeconomic groups access to nontraditional pathways

Table 8 Capstone Testing Among Noncredit Programs in the New York City Labor Market Sample

School	Programs preparing for capstone testing, *n* (%)	Total programs, *n* (%)
Large Urban A[a]	8 (66.70)	12 (100.00)
Large Urban B	14 (48.30)	29 (100.00)
Large Suburban A[a]	28 (66.70)	42 (100.00)
Large Suburban B	13 (100.00)	13 (100.00)
Large Rural	44 (59.50)	74 (100.00)
Midsize Urban	26 (57.80)	45 (100.00)
Midsize Suburban A	17 (54.80)	31 (100.00)
Midsize Suburban B	34 (82.90)	41 (100.00)
Midsize Rural	19 (61.30)	31 (100.00)
Total counts	203	318

[a] Case study school.

into higher education. As one respondent noted, this could include those who receive their first taste of higher education via a certificate program and those who want eventually to transfer to a traditional 4-year college. Another respondent noted, "I think the strength of the community colleges is in their accessibility and their affordability, and their … stronger connections to a variety of those socioeconomic groups that reside within a county."

A third role for community colleges according to three participants is producing workforce training programs that are labor market informed. Especially via noncredit programs, community colleges can quickly assess and respond to labor market and employer needs via workforce training. Noncredit programs can help individuals who want to "renew themselves through a second career" and develop new skill sets. One respondent suggested, "As a quasi-governmental unit, we have the ability understand small businesses, medium-sized businesses, … and large businesses."

Finally, one respondent described how the most important role of community colleges is to improve and create stability in the communities they serve. She provided several examples, such as assisting with the development of their community entrepreneurial program, assisting with start-ups, and teaching students an entrepreneurial mind-set to create a self-sustaining business. For this reason, our respondents were also hesitant to train toward programs that did not meet minimum standards for job quality. For example, although the hospitality and tourism industry may offer a significant portion of job offerings in the NYC area, health care jobs are much more likely to lead to middle-class-sustaining wages and offer better career ladders. Therefore, schools make the choice to prepare their students for these jobs. This is an example of labor market misalignment, if we consider the representation of jobs in the area compared to offerings in the program. However, there may be jobs in an area that are simply not worth aligning to, where fewer opportunities exist for community college–based training or where jobs do not meet the quality standards that schools want their students to experience.

Summary: Credential Design and Competencies

Although schools varied in their offerings, the courses and programs in their catalogs appeared to be well suited to adult learners; they featured flexible hours and delivery mechanisms (even prior to the pandemic), a range of prices, and options for credentials in single- and multicourse programs. Few programs had prerequisites beyond basic skills or high school diplomas, and many had no prerequisites at all. A handful of programs were beginning to advertise pathways to credit; in interviews, we discovered that schools may be designing pathways to credit but not necessarily advertising them, and the process of expanding these pathways is difficult. This means that for potential students trying to discover their options, simply looking at the course catalogs may be insufficient to understand the full universe of possibilities in noncredit education, and schools will need to be very dedicated to designing noncredit-to-credit pathways if they want to expand offerings in the future.

Nearly, three-fourths of the overall noncredit program offerings across schools were in third-party credentials (industry certificates, occupational, or professional licensures), and 64% led to some form of capstone testing. This means that most of these programs should be building a set of skills that is known (or knowable) by employers.

Generally speaking, the programs were out of step with the industries identified as major employers in the Fordham Report (Sublett & Griffith, 2019). Compared to opportunities in the labor market, the schools were generally low in their offerings in business management and administration, marketing, and hospitality and tourism; in the latter two instances, several schools had no offerings at all. However, they were overrepresented in the health sciences. Yet, this was in step with respondents' perceptions of the role of community colleges in preparing learners for gainful employment in good jobs. Hospitality and tourism may offer a significant portion of job offerings in the NYC area, but health care jobs are much more likely to be good jobs with strong opportunities for advancement. Although they also work to strengthen the community at large and serve local employers, the schools are first trying to protect their students' interests.

Having explored the push factors in this system (credential design and competencies), we turn to an exploration of the pull factors: market processes.

Pull: Market Processes

We conducted interviews with two key groups to understand market processes, including how programs align their offerings to the labor market: school representatives and employers. Schools seek to align with their labor markets through

their credential designs, as described earlier, but also by building connections between students and employers and engaging employers with their programs. These engagements can be accomplished directly with employers or coordinated through broader systems, such as the workforce development system or local industry groups. However, we found that employers' awareness of credentials and the possibilities that community colleges provide for a trained labor force varied; results were generally disappointing and highlighted major challenges for student placement. We discuss each in turn.

Connecting Students and Employers

Job placement is an important measure of success for any education or training program. Yet, schools do not need to wait for graduation before building connections between students and employers.

Formal, direct individual connections can be incorporated into programs by design. As part of our program catalog analyses, we looked for structured opportunities provided to individual students to engage with area employers, as described in Table 8. These could be externships, internships, apprenticeships, clinicals, labs, or others. Of the 318 programs analyzed, eight offered an externship or internship (2.5%), only one offered an apprenticeship, 34 offered clinicals (10.8%), and eight offered labs (2.5%). The vast majority (80.2%) offered no structured opportunities for individual students to engage with area employers. Three programs had structured individual employer contacts in less than 10% of their programs (Large Urban B, Midsize Suburban B, and case study school Large Urban A). Another three had structured individual employer contacts in 15–20% of their programs (Large Rural, Midsize Urban, and Midsize Suburban A). The remaining three schools had high percentages of programs with structured individual employer connections (case study school Large Suburban A, with 28.5% of programs; Midsize Rural, with 35.5% of programs; and Large Suburban B, with 46.1% of programs). The vast majority of programs with contacts were related to the health professions.

The processes outlined in Table 9 for building student–employer connections are strong in that they offer individual students the opportunity to build longer-term connections with employers, gain job-ready skills, and showcase their own skills and talents for potential employers. Yet, most schools are offering very few of these formal engagement opportunities. This is a lost opportunity, as more formal, structured employer engagement opportunities embedded in curriculum would guarantee that all students, even those who are not as well connected or do not understand the value of employer engagement, can participate. However, in interviews, respondents described broad responsibilities for engagement throughout their programs, highlighting other tools in their arsenal for encouraging student–employer connections, such as career events and student tours, as explored in the section that follows.

Quality Indicators for Labor Market Alignment

Tables 3–8 in this report have presented key features of the studied schools' noncredit offerings, as presented in their noncredit catalogs. The driving interest was to understand program quality and labor market alignment. To move one step

Table 9 Noncredit Program Employer Connections, by Type, in New York City Labor Market Study

School	Connection type, *n* (%)							
	None	Externship	Internship	Apprenticeship	Clinical	Lab	Other	Total programs
Large Urban A[a]	11 (91.70)	0 (0.00)	0 (0.00)	0 (0.00)	1 (8.30)	0 (0.00)	0 (0.00)	12 (100)
Large Urban B	27 (93.10)	0 (0.00)	0 (0.00)	0 (0.00)	1 (3.40)	0 (0.00)	1 (3.40)	29 (100)
Large Suburban A[a]	30 (71.40)	0 (0.00)	1 (2.40)	0 (0.00)	4 (9.50)	7 (16.70)	0 (0.00)	42 (100)
Large Suburban B	7 (53.80)	0 (0.00)	1 (7.70)	0 (0.00)	5 (38.50)	0 (0.00)	0 (0.00)	13 (100)
Large Rural	60 (81.10)	1 (1.40)	0 (0.00)	0 (0.00)	9 (12.20)	1 (1.40)	3 (4.10)	74 (100)
Midsize Urban	37 (82.20)	1 (2.20)	0 (0.00)	0 (0.00)	5 (11.10)	0 (0.00)	2 (4.40)	45 (100)
Midsize Suburban A	25 (80.60)	0 (0.00)	0 (0.00)	1 (3.20)	3 (9.70)	0 (0.00)	2 (6.50)	31 (100)
Midsize Suburban B	38 (92.70)	0 (0.00)	0 (0.00)	0 (0.00)	1 (2.40)	0 (0.00)	2 (4.90)	41 (100)
Midsize Rural	20 (64.50)	3 (9.70)	1 (3.20)	0 (0.00)	5 (16.10)	0 (0.00)	2 (6.50)	31 (100)
Total counts	255	5	3	1	34	8	12	318

[a] Case study school.

further, we assembled three key indicators of labor market alignment, as demonstrated in Table 10: the use of industry-recognized credentials and licensures, capstone testing that demonstrates competencies, and formal student–employer connections embedded in program curricula. Each school is given a color rating based on how its percentages of program offerings compare to others' in three key domains: departmental certificates (a low percentage is ideal, as industry-recognized credentials and licensures are considered more aligned with the market), programs offering capstone testing (a high percentage is ideal, as capstone testing can offer third-party validation of students' skills), and programs with no formal employer contact (a low percentage is ideal, as employer contacts through programs give students an opportunity to build meaningful connections). The result is a simple grid that schools can use to understand how their labor market alignment stacks up to others', in specific categories that may be focuses for improvement. Several trends stand out:

1. Our case study schools, Large Urban A and Large Suburban A, offer a contrast. Large Suburban A had greens across the board, indicating high-quality credentials and employer connections. Large Urban A was in the process of building as a program and had roughly one-fourth of the offerings that Large Suburban had; it is strong in its offerings of capstone testing but needs improvement in extending its industry-recognized credentials and finding opportunities to build student–employer connections into its programs.
2. Large suburban schools are the best performers, as both are green across the board. This was not simply a matter of size advantages (Large Urban B was red across the board) or locale advantages (Midsize Suburban A was red in two out of three categories). Rather, the combination of the two appeared to confer advantages.
3. Midsize schools generally did not fare as well as large schools, generally speaking. This may be linked to resources.

Employer Engagement

For the most part, school respondents described employer engagement as an important, high-priority endeavor; it serves to connect students with meaningful opportunities for better lives. However, it is also an endeavor with many challenges, including coordination and access.

Values and Goals

Large Urban A was particularly attuned to its role in improving the financial situation of its local area, which was overall facing very grim economics (made even worse by the pandemic), and understood employer connections as vital to that

Table 10 Quality Indicators for Noncredit Offerings by School in New York City Labor Shed Study: Credentials and Market Processes

| School | Departmental certificates[a] | | Programs offering capstone testing[b] | | Programs with no formal employer contact[a] | | Overall | |
	Noncredit programs, *n* (%)	Tier	Noncredit programs, *n* (%)	Tier	Noncredit programs, *n* (%)	Tier	Total programs, *n* (%)	Average tier[d]
Large Suburban A[c]	8 (19.00)	Top	28 (66.70)	Top	30 (71.40)	Top	42 (100)	1
Large Suburban B	0 (0.00)	Top	13 (100.00)	Top	7 (53.80)	Top	13 (100)	1
Midsize Suburban B	5 (12.20)	Top	34 (82.90)	Top	38 (92.70)	Bottom	41 (100)	1.66
Midsize Rural	8 (25.80)	Mid	19 (61.30)	Mid	20 (64.50)	Top	31 (100)	1.66
Large Urban A[c]	3 (25.00)	Mid	8 (66.70)	Top	11 (91.70)	Bottom	12 (100)	2
Large Rural	24 (32.40)	Bottom	44 (59.50)	Mid	60 (81.10)	Mid	74 (100)	2.33
Midsize Urban	11 (24.40)	Mid	26 (57.80)	Bottom	37 (82.20)	Mid	45 (100)	2.33
Midsize Suburban A	15 (48.40)	Bottom	17 (54.80)	Bottom	25 (80.60)	Mid	31 (100)	2.66
Large Urban B	11 (37.90)	Bottom	14 (48.30)	Bottom	27 (93.10)	Bottom	29 (100)	3
Total counts	85		203		255		318	

[a] A lower percentage of programs in this category were considered positive; schools were grouped into thirds with the lowest percentages in the top tier, the middle third in the mid-tier, and the bottom third in the bottom tier. [b] A higher percentage of programs in these categories were considered positive; schools were grouped into thirds with the highest percentages in the top tier, the middle third in the mid-tier, and the bottom third in the bottom tier. There was a tie for third place, so this category features four greens and two yellows. [c] Case study school. [d] Average tier calculated so 1 = top tier, 2 = mid-tier, and 3 = bottom tier.

effort. Its provost placed a high premium on employer engagement specifically as a way to drive students from low-SES areas in the NYC region into paying internships or jobs:

> So for me, obviously given the fact that our student body population is so diverse, it's something that it hits home because obviously our students come from very harsh beginnings. And having access to these companies, I mean everyone in this room has heard or known someone that works or have seen it or heard somebody's company, these are really, really top-notch companies. And for them in New York City to say hey, let's partner with [Large Urban A], I jump on it immediately, and I say definitely.

Respondents across both schools noted that the ideal outcome was continuing, mutually beneficial relationships with employers. In responding to the market, they wanted to invest institutional resources into long-term needs rather than quick solutions for specific employers. One respondent described these efforts: "I don't want a singular episode or a singular contact with an employer and never see them again. I want to have them come back. I want their new employees to come back."

Respondents spoke of diverse strategies they used to engage directly with employers. Tools for engaging employers included asking for feedback on their curriculum directly, inviting them to be mentors or guest speakers, and facilitating opportunities for students to visit worksites to learn about the organizations where they could one day be pursuing jobs. In addition to direct engagement, respondents noted strategies for understanding employer needs, such as high-tech tools (e.g., Burning Glass, or extensive reading of local business guides and want ads).

Respondents noted that the responsibility for employer engagement was not typically concentrated in just one person or position; rather, it was a team effort. One respondent described employer engagement as a job that all staff in continuing education take on (from administrative assistants up through those at the director level), as they all have a responsibility to their students to connect them to jobs. At Large Urban A, if articulation agreements are in place between credit and noncredit sides, then the noncredit program director and the department chair from the credit program engage local employers together. If there is a new program buildout, then the dean of workforce development and continuing education and whoever is the lead for the program engage with the employer. At Large Suburban A, several departments, including Student Services, the Perkins program, and Workforce Development, were all responsible for contacting employers for their own purposes, and there did not seem to be measured to ensure there would be no overlap.

These broadly shared responsibilities for engagement create a sense of prioritization for these endeavors; however, they can also be uncoordinated and somewhat chaotic. One respondent noted the lack of a truly centralized system for identifying and tracking the needs of the larger employer community so that resources could be leveraged instead of "duplicating services over and over in these different entities." One challenge to building student and employer connections is that this task is often handled by an office that is overburdened with many other tasks as well, or it is handled by many offices and lacks cohesive messaging and tracking. Multiple respondents simply lamented the lack of hours in a day to make all of the employer connections. At one school, the department that handled student–employer relationships also handled first-year experiences and freshman orientation, while also handling career coaching, internships, experiential opportunities, and more. At other schools, it is handled by each program or department. This decentralized system can cause issues with understanding and leveraging opportunities and maintaining consistent messaging to employers and students.

Access and Networking

Access to employers, and to the right people within employer organizations, can be another major hurdle in employer engagement. One respondent reported the challenge of finding employer contacts who were really embedded in the field in order to be able to transfer the right knowledge:

> Especially in health care, for example, having an employer partner and having the contact be HR is a little different than having the contact be the nurse manager on the floor, and so how do you find the right champion in those businesses?

One interview participant described the importance of reaching out to employers one-on-one on substantive topics, rather than in group networking settings, to engage them more effectively. This was less of a challenge for individuals who

had worked previously in other workforce development roles or who had extensive professional contacts, as exemplified by one respondent at Large Urban A who emailed everyone in her professional networks and let them know she would like to know their employment needs and asked how many students the employer could take from the institution. She received a 30–40% enthusiastic response. Her strategy was, after partnering with employers she already knew to be using her professional networks, to reach out to unfamiliar employers and ask them to partner as well.

Schools also engaged with employers through the workforce development system, local industry groups, or chambers of commerce. Some of the interviewees were less knowledgeable about the systems, while others worked very closely with them. Many describe using workforce development systems and regional organizations as a touchpoint to access employers and workforce training providers. They open doors to initial conversations with these third-party entities and allow them to build additional relationships. Large Urban A had recently begun working with the newly formed New York Jobs CEO Council, which included leaders from more than 20 Fortune 500 companies, educational institutions, and community organizations working to create access to good jobs for low-income communities. This was a nascent effort but was seen as having great potential to build stronger pipelines to good work for the college's graduates.

One key informant noted working very closely with the Workforce Investment Board (WIB) and staying abreast of job openings and receiving weekly job reports. Members of the college are invited to the WIB quarterly meetings and have regular conversations regarding employment and training services. They work with the WIB to connect students to training as well as monetary help and monitoring services, such as broad-based statistical information to help the employers, training providers, and agencies. Large Suburban A worked with the county-level employers' chamber and the business council chamber as well as employers directly to tap into resources for workforce training providers and for providing funding, but also to help the college assess and convene with employers. As an administrator noted,

> [the local workforce development board's] career pathways strategy has created eight industry sectors that are led by employers in the region. And so we work really closely with the WIB and with those industry sector partners . . . . I think to really keep our fingers on the pulse of what's happening.

Another issue is the way that funding and measures of success are currently structured, which impedes cross-school collaboration even among sister schools in systems of colleges, and leads schools to be protective of their employer relationships and workforce opportunities. One respondent at Large Urban A noted:

> Also, I think looking at how people guard their networks, because it was counterintuitive to me to come into this role knowing that [our school] was not the highest performer … in the area and not start from the competitive landscape of, we can outperform everyone else in this area, we just need to learn what they're doing and then do it better. This now new notion of workforce as a collaborative space runs counter to how we're funded and how we measure our success. And now that everyone is turning their attention towards the … student–employer relationship, they're measuring success based on the student getting into the employer's hands and being hired. But if we're saying, look, [our college system] hired 100,000 people. That's amazing. But the other schools might not even have programs that can survive something.

Employer Awareness and Valuation of Community Colleges

As noted in our methods, we were unable to conduct interviews with specific regional employers and rather pursued national employers who had a presence in the NYC area. These employers were not specifically partnered with community colleges in the NYC sample, but they were large employers that had extensive recruitment arms and many positions to fill in the IT or health care sector. Our sample included recruiters and HR specialists who were regularly responsible for strategies around filling entry-level positions. Employer interview participants were asked questions on their recruitment, hiring, and engagement practices, focusing on their engagement with community colleges. There was broad variation in the level of familiarity with community colleges and their value in providing a skilled workforce. The interviews highlighted key differences across the two industries. Whereas health care respondents were generally very positive about the value of community colleges in meeting their needs for a skilled workforce, IT respondents were generally less familiar with what community colleges could do and tended to describe the opportunities as far more limited.

In our employer interviews, we found few who were well versed in the difference between credit and noncredit programs, so many of the conversations that followed were with regard to community colleges generally as contributors to

the workforce. As a result, in many of our interviews, employers often blended their discussions of noncredit credentials with degreed credentials. We found this to be particularly true in the IT pathway.

Varying Perspectives by Industry

The health care industry participants were, for the most part, familiar with the credentials offered by community colleges and valued their contributions to the talent pipeline. They painted a picture of dynamic relationships with community colleges and an active pipeline of candidates on which they have come to rely. A recruiter from a large operator of health care facilities, speaking on the overall role that community colleges play in the health care industry, explained:

> To me, community colleges play a very important role in setting our students up for the workforce, whether they decide to go into mechanical engineering or to become a health care worker. It's just very important that they have the ability to provide a studious and rigorous course load for those students to be prepared for the real world.

This sense of quality coming from the community colleges was echoed by another interviewee, who explained that among some chief nursing officers, there is in fact a clear preference for high-performing associate's degree in nursing (ADN) candidates, as they often have more clinical experience than their bachelor of nursing peers. With the combination of greater clinical experience and a high-grade point average, "you're going to get a really good nurse." As ADN degrees can be part of a career pathway following health care certificates and often share faculty and staff with these programs, this bodes well for the quality of community college offerings in health care. In health care, academic certificates, licenses, and degrees are fairly standard in terms of the level of practical preparation across educational institutions because of the wider standardization the industry expects from nursing programs. This means that employers know what to expect from graduates of these programs. At the certified nursing assistant (CNA) level, the market demand is so high that one respondent saw it as an obstacle to organizational growth; the respondent noted, "It's a challenge because their biggest limitation is they can't build because they don't have enough CNAs. The demand, especially with [an] aging population, is way outpacing the supply." Allied health care's reliance on the community college–educated candidate market predates the COVID-19 era, but the demand for qualified nurses has only strengthened this alliance. As one allied health representative in the NYC labor market region reported, the demand imbalance in the nursing field is worsening from both directions:

> And, with COVID, what is happening in New York, a lot of the frontline people are burned out and they've quit, and we don't know if they're going to come back, so that's going to only exacerbate the supply and pipeline issue.

There was a notable contrast between the ways that allied health representatives and those in the IT space reported engaging with community colleges. Interviewees from a very large IT and professional services employer did speak of their openness to associate's-level candidates, indicating some support for community college education more generally. For example, one IT respondent opined:

> You're seeing the backgrounds and we don't judge if someone is hired, that's a, without a full degree or an AA [associate's degree] or relevant work experience, we're not viewing them and we hope our client does not view them as less than someone who has a better education.

The AA was considered an acceptable educational history if it was followed up later by a bachelor's degree (or beyond). The IT participants for the most part did not provide examples of active outreach with, or recruitment from, community colleges and seemed generally less aware of the benefits of community colleges. The degrees they reported expressly recruiting for were bachelor's degrees in computer science, information systems, and engineering: "It's pretty much been the requirement for the 4-year degree across the board." The same respondent went on to say that even a 4-year liberal arts degree combined with a 6- or 8-week boot camp would be seen as value added in the eyes of an IT recruiter. The recruiter went on to say:

> There are so many very strong programs, in my opinion in the community colleges and even in many of these IT boot camps that are out there in the marketplace that really do provide individuals who do not have degrees, the hands-on core experience that they need to get into organizations. And honestly, as now, and also moving forward

in the future, I think we're going to see much more of a trend where we're going to need to tap into that resource pool because they are going to really have the skill sets we need across the board.

The IT professionals with whom we spoke also discussed the combination of degrees and experience they required; generally, they were not hiring bachelor's students right out of college but rather required experience in addition to the degree. One of the IT representatives shared that their company would "typically hire experienced professionals into our internal firm services opportunities, and they are looking for people who can translate the skills they'd have learned elsewhere to come into the firm."

Perhaps this contrast is also a direct result of the relatively fast developments in the IT field, which in turn affect the demand for and supply of talent in the field. Describing the challenges in establishing and maintaining steady academic pipelines in community colleges, one of our IT industry representatives explained that for community colleges,

it's just hard … to be as agile as they want to be. It's a little bit hard to implement new curriculum and new ways of doing things as quickly as they would like to. But I think that's the challenge they have to overcome.

In terms of IT credentials, community colleges generally must be much better aligned with the labor market and able to tailor curriculum to meet the needs of local employers. This is especially hard in the COVID-19 era, when remote work has become even more normalized, a trend that was well under way for many IT professions even before COVID-19. For this reason, national IT recruiters do not see the need to partner with local community colleges, because, as one interviewee put it,

it's generally not the partnership with the school or with a community college … just because we're a national company in terms of how we hire. If I have a pen tester position, they can sit anywhere. So, they're not tied to a location . . . . We don't generally partner with a city-tied institution.

This recruiter further explained that as a company, their firm is interested in partnering, not with community colleges, but rather with the professional organizations and companies that offer specific professional certifications related to the firm's services that hold a lot of value, such as certification in threat intelligence, pen testing, or security operations.

Labor Market Intermediaries

One potential solution for aligning colleges and schools is the introduction of labor market intermediaries, individuals, or organizations that serve as brokers between employers and schools to identify labor market needs by working with employers and then coordinating with schools to build talent pipelines. One important labor market intermediary is the local workforce board, and interview respondents in each school reported good working relationships with those boards. We were able to connect with a third-party labor market intermediary who worked primarily in health care, where he was able to help schools tailor programs and even introduce new job categories (one example was the introduction of community health workers in the area). In this role, he described the process of approaching schools with new program ideas connected to employer needs and approaching employers with opportunities to use schools to fill gaps in their workforces.

A dedicated labor market intermediary offers many benefits. These individuals or organizations are often able to leverage different funding opportunities to build new opportunities in the area. For example, the labor market intermediary with whom we spoke was able to braid grants and government funding opportunities to help build programs such as the community health worker position. Labor market intermediaries are able to negotiate with schools on behalf of employers to help align programs to needs, but given that they can represent more than one school, they occupy a position of power that makes them able to negotiate with employers to ensure that they are offering quality jobs with living wages.

Given the time-intensive nature of engaging with employers and the challenges it creates for school staff, labor market intermediaries are a promising solution to increase opportunities for schools and students.

Summary: Market Processes

Schools were offering limited formal opportunities for student–employer connections through programs (e.g., internships, externships, clinicals), although they worked to offer other opportunities. Employer engagement is challenging for

schools, though they highly value and commit many resources to the endeavor. Access, finding the right people in the organization, and having time to fit it all in are challenges. One possible solution is the use of labor market intermediaries, who can help employers communicate needs, build opportunities for students by leveraging resources, and negotiate better opportunities for students.

Discussion and Conclusion

The noncredit program mission is complex given the needs of a diverse and often underrepresented adult learner clientele who often have considerable resource constraints and can be hesitant to commit to a longer-term educational plan (see Education Advisory Board, 2019; Olivera-Aguilar et al., 2021). Noncredit programs can be ideal points of entry to career pathways that allow individuals greater flexibility to "learn and earn" while building a meaningful career. These programs allow flexible on-ramps or access to workforce training and development in ways that credit programs may not (Buckwalter & Maag, 2019; Education Strategy Group, 2020; Haviland & Robbins, 2021; Jacobs, 2019) and are growing in popularity (Barshay, 2020).

This in-depth case study of the NYC labor market region follows a push–pull model, which investigates learner push through quality-driven career and technical training programs tied to credential design and industry-specific success standards (e.g., certification and licensure, on-the-job training experience). Building from a research framework developed by Rutgers (Van Noy et al., 2019), we used a combination of document review and key informant interviews to understand the design and accessibility of noncredit community college programs. At the same time, we investigated the pull factors by seeking to understand employer recruitment, hiring, and training investment behaviors and employer direct and indirect engagement with local community colleges. We purposefully targeted allied health and IT career verticals, as both have well-established credential design and standards tied to certification and licensure, and they are prominent across labor market regions (cf. Sublett & Griffith, 2019). Our intent was to see how well noncredit programs aligned to employer expectations.

Our findings were organized around themes derived from the Rutgers conceptual model: (a) credential design and competencies and (b) market processes. These are key frames for understanding noncredit program design and quality. In the discussion and recommendations to follow, we examine the implications of our findings as they apply to four key stakeholders: (a) *learners* (i.e., information, informed decision-making), (b) *programs* (i.e., building quality through coherence, applicability, and transparency of curriculum), (c) *schools* (i.e., organization and policy), and (d) *employers* (i.e., value of school, hiring behavior).

Learner Information and Informed Decision-Making

So how do adult learners and displaced workers access the community college offerings and make informed decisions that benefit them in both the short and long term? At a very practical level, our difficulty scrubbing institution catalogs is a mini-study in the difficulty learners face in navigating curricular choices and options. The underlying issue is not simply better documentation of offerings but ensuring that students and adult learners understand their options when entering a noncredit program and how best to leverage training to meet longer-term goals. In complementary research surveying adult learner attitudes and expectations toward career and technical training in the NYC labor market region (Olivera-Aguilar et al., 2021), we found gender and race disparities in career path expectations and limited information on career and technical training options. This research underscores the criticality of coherent and timely information when making informed decisions. Yet, in our investigation, we found that catalogs were not easily understood or comprehensive and had limited resources available for holistic assessment and guidance to ensure students understood their options and made choices consistent with their interests and values. This problem is not unique to noncredit programs and has been observed in for-credit community college catalogs as well, which are prone to what O'Banion and Miles (2021) have described as excess span and scope, unbounded choice, and ambiguity of purpose.

Advising, particularly more intensive advising regimens, such as the intrusive advising model, is a highly promising model for schools to pursue in improving information flows (Finnie et al., 2017; Schwebel et al., 2012). They merit consideration by any program that is serious about student success. One far more inexpensive and simple fix programs can make, however, is improving their catalogs and program guides to improve program transparency. Schools can invest in websites that clearly demarcate program requirements from beginning to end (not simply the courses being offered in the

current semester), as well as career pathway information, such as education and job options after program completion. This would serve to improve information flows to potential students considering their options in community colleges and offer clarity about program pathways for those who do matriculate.

Program Accessibility, Transparency, Coherence, and Quality

Schools are generally doing well in terms of *accessibility*: They offer flexible programs and courses that can be taken off-hours and online. This was the case even before the pandemic, as evidenced by our document review, and the pandemic may accelerate opportunities for outreach to adult learner groups seeking to reenter the workforce and/or to upskill, as we learned in our discussions with school representatives. Given the pandemic and the acceleration of remote training options, noncredit programs are well positioned to meet the needs of displaced workers and/or those needing to reskill or upskill given the fast pace of changes in the workplace due to automation, global competition, and technological innovation (Manyika et al., 2017).

While *transparency* could be improved, the majority of the schools we examined had built programs that were accessible and flexible for students, with catalogs that included low-cost programs, with a range of costs; credential options that could be completed in one course and those that were more complex and required multiple courses; evening, weekend, and online-only options for learning; and a majority of options that required no special prerequisites more sophisticated than basic skills or a high school diploma.

A good sign for program *coherence and quality* was the roughly three-fourths of programs schools were offering that featured industry-recognized credentials, and nearly as many offered capstone testing of one form or another. This lends third-party credibility and some elements of standardization to programs that are otherwise largely unregulated and is a good sign for program quality.

A lost opportunity, however, can be found in the high proportion of programs that do not advertise any formal employer contact; more than half of programs at all of the schools, and in three schools, over 90% of programs, did not engage in formal connections like externships, internships, apprenticeships, clinicals, or labs. Given the high proportion of programs that are single course, it is not surprising that these numbers are somewhat low, and experiential education of this sort can be complex to carry out, as it requires familiarity with area employers. However, they also give students an opportunity to reinforce skills in a work environment, building relationships in their chosen industry while building their own résumés.

Expanding these offerings would improve the labor market alignment of programs, build connections with local employers, and add value to the programs. However, our interviews also revealed that efforts to engage employers could be scattershot and required a high volume of staff time that was not necessarily available for employees of these programs.

Schools Building Quality through Coherence, Applicability, and Transparency of Curriculum

The emergence of career pathways and career progression is threatened by an inherent tension between credit and non-credit funding and incentive structures, which limit investment in noncredit programming and crossover between credit and noncredit sides of the house. For schools to build meaningful career pathways, they will need to examine how to align noncredit and credit programs in a way that smooths the path for more vulnerable students. This is a challenging area that requires buy-in from faculty and staff stakeholders. In many schools, noncredit and credit programs exist in separate silos, and there can be a perceived threat to credit programs if such pathways are instituted. It will likely require significant leadership from school administrators to bridge these divides, as was demonstrated in our case study schools. Large Suburban A was actively working to bridge existing noncredit and credit programs, and Large Urban A was building programs from the ground up with noncredit-to-credit transitions in mind. In both cases, the provosts were providing leadership and coordinating with strong noncredit directors. This signals to faculty and staff in both areas that these pathways are important.

Overall, the industries represented in these *program offerings* were out of step with top CTE industries identified by the Fordham Report. However, this is not necessarily a bad thing in cases where the top industries represented jobs that do not pay well or have limited opportunities for meaningful advancement. This is the calculation several interview respondents noted—they did not want to train students for jobs that would not lead to better careers. Health science offers a good pathway with many on-ramps, predictable requirements for in-demand jobs, opportunities for strong salaries, and an industry that accepts community college credentials; it is reasonable for schools to double down on their investment in this area.

School representatives see their role as improving equality and job opportunities, thus, building stronger communities. They want their students to land in good jobs. However, they struggled to commit the time and resources to *institution advocacy* and *employer engagement* that would create more opportunities for their students. And our conversations with employers demonstrated a need for greater action in this area, as employer respondents were often unclear on what community colleges could do for them and the value of their students. In many cases, there was a complete lack of familiarity with the potential of these schools. It is important to note, however, that this may be less of a challenge with regional employers or single-site operations, which may have more motivation to engage with local community colleges.

One interesting model that emerged from our conversations was the use of a labor market intermediary. This impressive example demonstrated how a "broker" can (a) intake students using a combination of skill and motivational evaluation and support, (b) ensure proper placement or the right person for the right training program/right job, and (c) create the connections to local employers that are committed to and confident in hiring these graduates. The labor market intermediary does not work for the school but can leverage across schools to develop talent pools employers need and can use that power to advocate for stronger job quality for students placed. As the intermediary's job is solely to focus on aligning talent to jobs, they are better able to focus on employer engagement and relationship building. While schools may be able to take on more of the functions of this role, connecting with a third-party labor market intermediary may provide greater scale while diminishing some of the need for more resource-intensive employer engagement strategies.

Employers' Valuation of Schools and Hiring Behaviors

Employers were not universal in their recognition of the value of community college credentials, and this varied by industry. While the health care industry generally recognized the value of community colleges in supplying and training their workforce, this was less of an asset in the IT field.

Employer *hiring behavior* is key to synchronizing signals between training program graduation requirements, including support for certification and licensure and ready access to competitive jobs. We found some bias or stigma related to subbaccalaureate training regardless of technical skill expectations, especially in the IT area. In other words, companies viewed workers as "service workers" who did not benefit from further training investment, nor were they identified as strategic when investing in community outreach. This finding is especially concerning as we think about access and equity, where underserved groups seek to enter a career pathway with the intent of further training to allow for career progression (for discussion of the "getting on" stage of career progression, see Haviland & Robbins, 2021). Future work is needed to explore whether the bachelor's-level work was truly required in these jobs or if this was an example of education creep (Van de Werfhorst & Andersen, 2005).

Our health care respondents were generally more bullish about community college credentials, which may in part be due to the regimented nature of the industry (all of the health care program outcomes were industry credentials or licensures, and most featured capstone testing, making the quality of these credentials very clear and knowable).

Next Steps

The CTE Bridge study is launching a comparison labor market study in Atlanta to further study noncredit program alignment to local labor markets and examine how state context may influence these processes and relationships. These results will inform the design of a national survey of community college representatives and employer partners to further home in on key pain points in labor market alignment, which can inform future solutions. Organizations like the National Council for Workforce Education should investigate formalizing quality indicators and standards that can be used as guideposts by community colleges as they think about career pathway coherence and their alignment both within the institution (e.g., credit and noncredit programs) and with local employer networks and hiring expectations.

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Notes

1 This list does include programs that offer a formal *pathway to credit*. However, these are not automatic processes and not always guaranteed; all programs in this study default to a no-college-credit model. As they do not lead to employment, though civilian CPR and first aid programs meet the criteria for a program, we eliminated them from this analysis.

2 Given the small sample of rural schools, the research team decided to focus on urban and suburban schools and omit rural from the case studies.

3 https://www.ed2go.com/

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