

RESEARCH REPORT

# Strategies for Workforce Success in Career and Technical Education

Results from a Survey of Career and Technical Education Programs

*Nathan Sick*  
URBAN INSTITUTE

*Amanda Briggs*  
URBAN INSTITUTE

*Jincy Wilson*  
URBAN INSTITUTE

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# Executive Summary

Many students in postsecondary education programs face challenges navigating pathways to good jobs. In particular, students who face barriers to success need accessible pathways to economic mobility, but low income and low tolerance for debt present challenges. These students stand to benefit from strategies at all levels of education (and after they enter the workforce) that support their career goals. This report describes results from a survey of career and technical education (CTE) program administrators, with insights about the strategies colleges can use to support students in getting good jobs—jobs that offer pathways to economic stability and long-term upward mobility. A better understanding of these strategies can help educators design CTE programs that ensure students succeed after graduation.

## Key Strategies Postsecondary Programs Use to Help Students Gain Employment

Short-term CTE programs can be the first step in students obtaining good jobs. Good jobs are those that offer pathways to economic stability and long-term upward mobility. However, program administrators and employers need more information about the most effective CTE strategies they can use to help students build successful careers.

This report highlights the findings from a survey of nursing and business CTE program administrators. The survey results were linked to student earnings outcomes from the 2021 College Scorecard. The survey explored strategies for supporting the “new majority” of postsecondary students. This group includes individuals from low-income backgrounds, underrepresented communities, student parents, working adults, returning citizens, and other groups.

## Survey Findings on Effective CTE Programs

The survey results focused on strategies that fall into three dimensions: **supporting career decisions and providing navigation**, **building skills for work**, and **connecting students to employment**. Underlying those dimensions is the need for programs to always be student centered and market aligned.

## 1. Supporting Career Decisions and Providing Navigation

- Academic counseling was the most common strategy used in nursing and business programs, with approximately 80 percent of programs requiring academic counseling.
- Program administrators said that early and consistent advising, skill assessments, credit for prior learning, and clear career pathway information supported students' career decisions.
- Business programs more commonly awarded students credit for prior learning compared with nursing programs.
- Nursing programs that used academic counseling, career counseling, or assessments of student skills or interests had completers with higher annual earnings compared with programs that did not use those strategies.
- Business program respondents identified career counseling and exploration as areas for improvement, suggesting the need for dedicated career counselors or assessments to ensure students pursue the correct educational path for their career goals.

## 2. Building Skills for Work

- Most nursing programs (94 percent) required work-based learning, mainly clinicals or practicums. Work-based learning is built into nursing education because clinicals are federally required.
- Business programs required work-based learning less frequently, with approximately 36 percent requiring it. The most common types were internships (31 percent), co-op placements (11 percent), apprenticeships (4 percent), and clinicals (4 percent).
- Simulated on-the-job training was used by most nursing programs, possibly through required clinicals, although some respondents said that classroom simulations were important. About three out of four business programs incorporated simulated work experiences into their curricula, aiming to develop work-related skills even when work-based learning was not mandatory.
- Both nursing and business programs frequently integrated career-connected information into their basic skills or foundational classes.

### 3. Connecting Students to Employment and Aligning with the Market

- Most nursing and business programs engaged in conversations with employers to improve the hiring and retention of students. However, few programs from either field had interview or hiring commitments in place with employers, and some respondents stated that they wished they did.
- Both nursing and business programs offered career services such as job fairs, mock interviews, and personalized job search assistance.
- Some programs used competency-based coursework, digital portfolios, and microcredentials to demonstrate or signal student skills to employers.
- Tracking employment outcomes and collecting data disaggregated by race and ethnicity is important for identifying and addressing disparities in student success, but few nursing (30 percent) or business (36 percent) programs did so.
- Because of the high demand for workers, many nursing respondents felt they did not require additional information to help completers secure jobs. In contrast, business respondents felt they needed better labor market data and information on student support needs.

## Differences between Business and Nursing CTE Programs

Business and nursing CTE programs differed in their approaches to workforce alignment and emphasis on career decision support and employer engagement.

- **Business programs used strategies to support career decisions more frequently than nursing programs.** However, specialized counselors or advisors were uncommon in both program types, and early counseling or advising was limited compared with counseling offered later in the program.
- **Demand and earnings sometimes varied with career support.** Nursing programs that required counseling had completers with higher earnings, whereas no similar trend was observed in business programs. High demand for nursing workers leads to relatively easy job placement for most completers, but prior evidence suggests that efforts to improve job retention would help completers succeed.

- **Business programs awarded students credit for prior learning more frequently than nursing programs.** This may be because nursing is subject to more regulations and licensure requirements compared with business.
- **Business programs identified employer engagement as a major weakness,** saying they lack required work-based learning and other career exposure opportunities. Nursing programs had few work-based learning options beyond required clinicals, although prior research suggests that health care students and employers might benefit from such opportunities.
- **Business programs more frequently used digital portfolios and microcredentials.** These tools for signaling skills to employers may be less relevant in nursing programs, for which licensure is commonly relied upon to demonstrate skill sets.

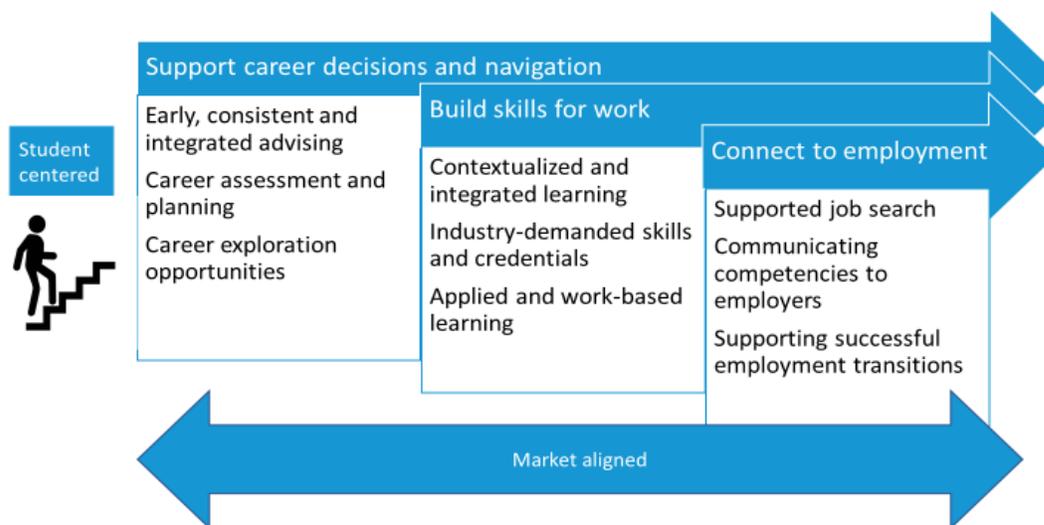
## Recommendations for CTE Programs

Recommendations based on these research findings can help CTE programs strengthen their career connections, align with workforce demands, promote equitable outcomes, and provide students with comprehensive support in their transition to employment.

- **Increase employer engagement by business programs** to strengthen relationships with local employers and provide students with concrete work-based learning experiences.
- **Collect and analyze disaggregated employment outcomes** to promote equitable labor market outcomes and address disparities that exist for students of color and other new majority learners—not just in job placements, but in wages, hours, working conditions, career advancement, and overall well-being.
- **Prioritize academic and career-oriented counseling,** dedicating resources to specialized career advisors and providing support at the beginning of programs.
- **Formalize interview or hiring agreements with employers** to establish a mutual commitment and ensure program quality and employment opportunities.
- **Focus on improving job retention in nursing programs** by engaging students early in their career pathways and providing career or retention specialists.

# Strategies for Workforce Success in Career and Technical Education

Education providers can use an established framework of workforce-aligned strategies to help their students get good jobs (Spaulding and Sirois 2022). These strategies can especially help new majority learners (formerly “nontraditional” students), a term that includes students with low incomes, students of color and those from marginalized groups, adult learners, and student parents (among other groups).<sup>1</sup> The strategies are grouped into three dimensions of workforce alignment: **supporting career decisions and providing students with navigation, building skills for work, and fostering connections to employment** (figure 1). Underlying the three dimensions is the need for programs to be both **student centered and market aligned**.



**FIGURE 1**  
**Workforce Alignment Framework**

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**Source:** Shayne Spaulding and Madeleine Sirois, “Designing Career and Technical Education Programs That Help Students Get Good Jobs.” Washington, DC: Urban Institute, 2022.

We used these dimensions to create the Career and Technical Education Survey on Designing Career-Focused Programs (CTE Survey), which is the basis of this report (see appendix A for the survey instrument). Our team fielded the CTE Survey from November 2022 through April 2023 to

administrators of vocational nursing certificate programs and business administration, management, and operations associate degree programs. We refer to these program types throughout this report as nursing and business, respectively.<sup>2</sup>

We chose the nursing and business fields of study for three reasons:

- They are two of the most common fields of study among CTE students enrolled in credit-bearing postsecondary programs.<sup>3</sup> Studying common fields increases the relevance of key findings in this report and provides large enough samples of programs to survey.
- While nursing and business programs offer specific subfields of study, both are primarily attended by students pursuing one type of credential: licensed practical/vocational nursing certificates and general business administration and management degrees, respectively.<sup>4</sup> That uniformity makes the survey results more reliable, as respondents are answering on behalf of fewer specific credentials than they might for other fields of study.
- The contrast between nursing and business programs helps show how workforce-aligned strategies can vary across sectors and credentials (e.g., certificates versus associate degrees).

Nursing and business have contrasting labor market demands and licensing or credentialing requirements, which are broadly reflective of differences in CTE at large. We characterize nursing as a more rigidly structured field in which most occupations require licensure or credentials,<sup>5</sup> demand for licensed workers is high, and most employers will be in the health care field. Business has a less rigidly defined career pathway: completers may obtain a job without any licensure, the exact nature of their work is not predetermined by their degree, and employers may be in many industries or occupational fields. Business program administrators have a wider range of job options and levels of demand for their students, but that range may also present challenges in supporting students moving toward varied career goals.

The findings in this report are centered around the following research questions:

- What strategies did nursing and business programs use, and what were the most common strategies used by each program type?
- Were there differences in student earnings outcomes for nursing and business programs, depending on the strategies they used?
- What opportunities did college administrators of nursing and business programs see to improve strategies and address challenges?

We identified specific nursing and business programs to survey using data from the publicly available 2021 College Scorecard, with the criteria that each program had median earnings data available.<sup>6</sup> The 2021 College Scorecard contains median two-year earnings data among completers in 2017–18 and 2018–19. In Scott, Sick, and Wilson (2022), our team used the 2021 College Scorecard to examine the value of short-term CTE credentials in terms of completer debt and earnings. That research showed that in some fields, such as business, “where” you study sometimes matters more than “what” you study. In others, including health care, “what” you study and the specific credential you obtain matters more for outcomes.

The results of Scott, Sick, and Wilson (2022) also show that variance in student debt and earnings outcomes is not entirely explained by factors such as the field of study, program demographics, the type of institution, and the labor market. That suggests that program design can influence student outcomes and credential value in the labor market. However, the College Scorecard does not have many details about programs themselves, such as the specific strategies they used, and so there were limitations on what the data could tell us. We therefore fielded the CTE Survey to explore how CTE programs design supports for students navigating career decisions, and how program design is related to students’ ability to get good jobs. This report is part of a larger study that seeks to build knowledge on strategies for workforce alignment (box 1).

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## BOX 1

### Overview of the Workforce Alignment Study

The Workforce Alignment Study, funded by Ascendium Education Group, seeks to build knowledge on how colleges and other educational institutions can design short-term career and technical education (CTE) programs to ensure students can get good jobs. Most students who enroll in CTE programs—once described as nontraditional students—are the new majority in postsecondary programs today and need well-designed programs and enhanced support to help them overcome barriers to opportunity and improve their pathways to economic mobility. These learners include students from low-income and underrepresented communities, as well as students not coming directly from high school, such as student parents, adults juggling work and school, returning citizens, and others. The Workforce Alignment Study features this report profiling nursing and business programs to describe how program design and strategies differ across sectors and may shape student outcomes, a landscape scan brief describing a full range of market-aligned and student-centered program design options for college CTE programs, and a report analyzing debt and earnings for CTE programs.

### Key Terms

**Good jobs** are jobs that offer pathways to economic stability and long-term economic mobility.

**Institutional, systemic, or structural barriers, including barriers to employment** are obstacles that collectively affect a group disproportionately and perpetuate or maintain stark disparities in outcomes. These obstacles can be policies, practices, and other norms that favor an advantaged group while systematically disadvantaging a marginalized group (Simms et al. 2015).

**New majority learners** is a term to capture the diversity of students engaged in education today, who were often excluded in the design of programs.<sup>a</sup> This group includes students from low-income or underrepresented communities that have been historically marginalized, adults returning to school, parents, returning citizens, and others.

**Workforce alignment** refers to the strategies that not only prepare individuals for in-demand jobs but also ensure students can obtain good jobs and careers with family-sustaining wages, a sense of satisfaction, and opportunities for advancement.

<sup>a</sup> “Who Are New Majority Learners?” Education Design Lab, accessed June 27, 2023, <https://eddesignlab.org/newmajoritylearners/>.

# Data and Limitations

We conducted an exploratory analysis using the CTE Survey to answer the research questions by examining how common different workforce-aligned strategies were, what program administrators said in open responses, and whether the earnings of program completers varied (and by how much).

## Data Sources

We fielded the CTE Survey to 738 program administrators (e.g., career and technical education deans) using the online survey platform Qualtrics.<sup>7</sup> We initially contacted 422 nursing programs and 316 business programs. Administrators who completed the survey were given the option to receive a financial incentive for their time.

We obtained 69 nursing responses (16 percent response rate) and 45 business responses (14 percent response rate) (table 1). In total, we received 114 responses for a 15 percent response rate. The characteristics of respondent programs were similar to those of programs whose administrators did not respond. Nursing programs at four-year institutions and business programs serving adult learners were slightly underrepresented in responses. Compared with business program completers, nursing program completers had median annual earnings almost \$6,000 higher.

**TABLE 1**  
**Characteristics of CTE Survey Respondent Programs**

Characteristic	Nursing	Business
<b>Number of respondents</b>	<b>69</b>	<b>45</b>
<b>Student outcomes: Median annual earnings (among program completers)<sup>a</sup></b>	<b>\$35,999</b>	<b>\$30,102</b>
<b>Characteristics of students in programs (%)</b>		
Female students	91	60
Students of color <sup>b</sup>	40	32
<b>Characteristics of programs (share of programs) (%)</b>		
More than half of students are adult learners <sup>c</sup>	55	29
More than half of students receive financial assistance <sup>d</sup>	93	84
More than half of students complete	90	44
More than half of completers are incumbent workers <sup>e</sup>	32	18
Evening or weekend classes offered pre-pandemic	46	87
Online classes offered pre-pandemic	35	100
<b>Institution characteristics (share of programs at type of institution) (%)</b>		
<i>Level of institution</i>		

Characteristic	Nursing	Business
4 year	9	20
2 year	52	80
Less than 2 year	39	0
<i>Control of institution</i>		
Private, for profit	13	2
Private, nonprofit	1	0
Public	86	98
<i>Institution locale</i>		
City	32	42
Suburbs	20	20
Town	32	18
Rural	16	20

**Sources:** 2021 College Scorecard; Integrated Postsecondary Education Data System (IPEDS); and CTE Survey (share of programs rows; November 2022 to March 2023).

**Notes:** Nursing  $N = 69$ ; business  $N = 45$ . Percentages are out of all programs in each field of study.

<sup>a</sup> Median annual earnings are in the two years after program completion.

<sup>b</sup> Students of color are any students who identified as a race or ethnicity other than white.

<sup>c</sup> Adult learners are students ages 25 and older.

<sup>d</sup> Financial assistance includes Pell grants and federal student loans.

<sup>e</sup> Incumbent workers are already employed in the target industry of the program and seeking additional skills or advancement in that industry.

The survey included approximately 40 questions that asked about strategies programs used before the COVID-19 pandemic. We chose a pre-pandemic time frame because it aligned with the 2021 College Scorecard and because many programs had to overhaul standard practices for serving students in the shift to emergency learning.<sup>8</sup> Survey topics included which workforce-aligned strategies programs used and how often they used them, whether the strategies were required, student characteristics, and opinions on the strategies' implementation.

## Limitations

We identified several limitations that provide context to the results and the findings:

- **The CTE Survey collected information about the state of programs before the COVID-19 pandemic.** In general, postsecondary education had to adapt to the pandemic and it is unclear how many changes might be permanent. The findings from the CTE Survey are not applicable to the period of adaptation programs underwent during the pandemic, and differences may persist going forward. However, the CTE Survey did ask programs open-text questions about

some of the changes they experienced during the COVID-19 pandemic. Appendix B offers a brief discussion of how the pandemic affected general operations at respondents' colleges and their use of workforce-aligned strategies.

- **Our conclusions were drawn from a small sample size.** Although we focus on larger differences between nursing (69 responses) and business programs (45 responses), the sample sizes for those fields are both less than 100 programs. We note when differences in student earnings outcomes are statistically significant ( $p < 0.10$ ), but also acknowledge the limitations of the findings attributable to the sample size. Appendix table C.1 shows all student earnings outcomes by program strategy.
- **Programs often included training for multiple specific occupations.** Each of the three program types we surveyed is defined by its four-digit classification of instructional programs (CIP) code and the level of credential it confers. Some of these programs contain more than one specific course of study. For example, some nursing programs contain training for licensed practical/vocational nurses, as well as for nurses/nursing assistants/aides and patient care technicians. Appendix table C.2 shows the specific types of training within each field of study. Program administrators were instructed to respond for the “typical program offered at their college in that field of study.” Each program type had a dominant training, as 93 percent of nursing programs had licensed practical/vocational nurse training and 100 percent of business programs contained training for general business administration and management credentials. However, some respondents answered for additional trainings as well, which could influence the strategies they use and students' outcomes.<sup>9</sup>

Despite these limitations, the CTE Survey provides a comprehensive account of the strategies programs use to help their students get good jobs. Survey results include insights about the presence or absence of those strategies, what programs wish they did better to support students in achieving their career goals, and how student outcomes differ across programs.

# Supporting Career Decisions and Providing Navigation

The CTE Survey asked programs about the strategies they used to support career decisions. We focus on two main types of strategies to support career decisions. The first is advising, navigation, and exploration, and the second is assessments to award students with credit for their prior learning experiences. These two groups of strategies place value on students' past experiences and on their future trajectory. See box 2 for definitions of terms used in this section.

- **Career advising, navigation, and exploration.** A review of available evidence shows that early, consistent, and integrated advising helps programs support students' career decisions (Spaulding and Sirois 2022). Career exploration strategies can help students focus on employment-related skills through guided introspection about career goals (Spaulding and Sirois 2022).
- **Assessments to award credit for prior learning.** Assessments of students' skills and interests are often easy to implement. When used in conjunction with other career advising, assessments may help increase students' career confidence and even persistence (Hughes and Karp 2004; Karp 2013). Assessments can also be used to grant students credit for prior learning experience, signaling that programs value students' past experience, skills, and knowledge. Further, offering students multiple ways to earn credit can increase their uptake of credit-awarding opportunities (Klein-Collins et al. 2020). Ultimately, prior learning assessment can help students complete a credential and get a job promptly—particularly important for those who have low incomes or who are adult learners (Klein-Collins et al. 2020).

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## BOX 2

### **Key Definitions: Strategies to Support Career Advising, Navigation, and Exploration**

**Career exploration courses** might involve guided introspection about career goals, group advisory sessions that focus on employment-related skills (such as resume writing), and visits to prospective employers. Such courses are sometimes available to first-year students.

**Credit for prior learning** (sometimes known as prior learning assessment) commonly involves using either course knowledge or industry-approved skill assessments to award students with credit if they demonstrate a mastery of relevant knowledge. Credit for prior learning may also be given based on a faculty review of student portfolios.

**Prior learning assessments** are usually standardized exams or evaluations of student portfolios that are used to give students credit for prior experiences and skills.

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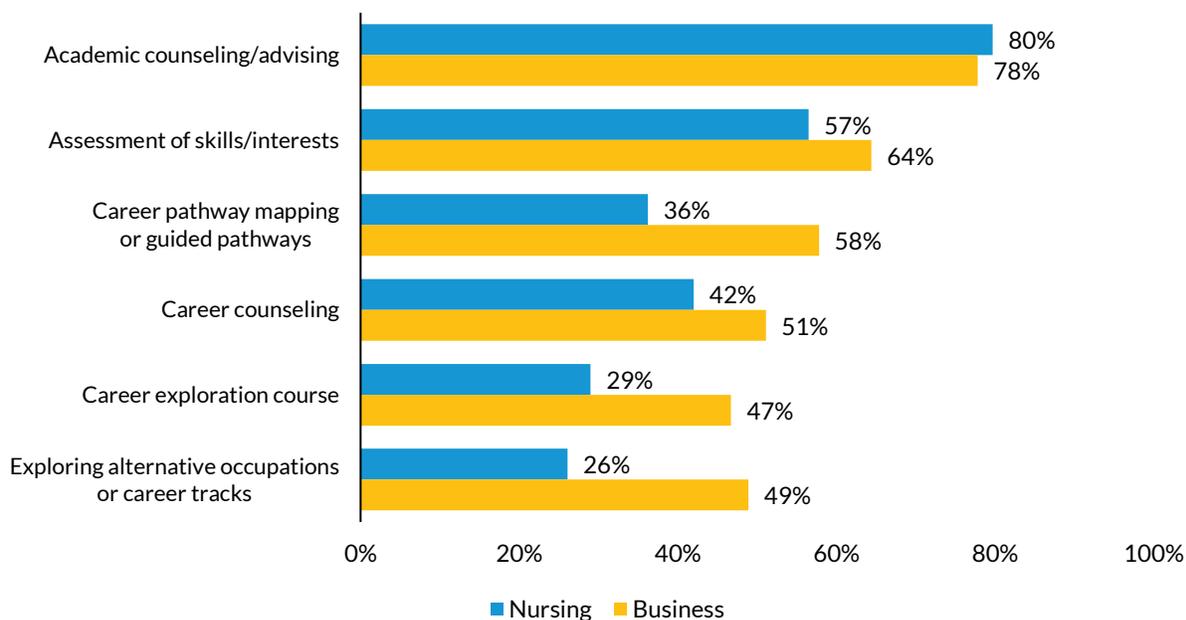
## Career Advising, Navigation, and Exploration

The most common career advising and navigation strategy for our respondents was **academic counseling (figure 2)**. Approximately 80 percent of programs in both nursing and business required academic counseling. Academic and career counseling in CTE are often intertwined, because the goal of CTE is to connect completers with employment. After academic counseling, assessment of students' skills and interests was the most common strategy, used by more than half of nursing (57 percent) and business (64 percent) programs.

FIGURE 2

### Strategies CTE Programs Used to Support Student Career Decisions

Percentage of responding programs



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Source: CTE Survey (November 2022 to March 2023).

Notes: Nursing N = 69; business N = 45. Percentages are out of all programs in each field of study. Percentages are how many programs required each strategy for some or all their students (compared with the percentage of programs that did not require each strategy for any students). Career counseling, career exploration, and exploration of alternative occupations or career tracks are within the field of study of the program.

#### **Business programs used more strategies to support career decisions than nursing programs did.**

This might have been because students need more help navigating business pathways, which are not as well specified. A larger share of business programs used all six strategies in figure 2, especially career exploration courses and exploration of alternate occupations or career tracks.

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*[Academic and career advising] supports are targeted and prioritized by degree of need and resources available. Education planners are trained in the program-specific areas to better advise and recommend [options according to student needs], and faculty advisors are trained in identifying and connecting the student with on-campus resources.*

*—Business program administrator*

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Business programs might use career counseling and exploration strategies more often because pathways and opportunities are more varied in business than in nursing, and business CTE completers have lower median earnings than nursing CTE completers. On average, business programs each used 3.5 strategies to support career decisions while nursing programs used 2.7 strategies. But nursing programs that used three or more strategies to support career decisions had completers with \$2,700 higher annual earnings than other programs.<sup>10</sup>

In open-text questions, one-fifth (19 percent) of business programs singled out career counseling or exploration as the top area that needed improvement. Some respondents said that their programs should have “had more focus on career options,” “had an embedded or dedicated career counselor,” or “used an assessment to be sure students were pursuing the correct degree for their career goals.” Although the strategy is not shown in figure 2, the CTE Survey also asked business and nursing programs whether their departments hired or trained specialized career advisors or staff specifically for the program. Despite using more strategies that support career decisions, business programs did not have specialized career advisors any more often (27 percent of programs) than nursing programs did (29 percent of programs).

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*[We need to offer] specific career paths or tracks within the program rather than just offering a general business degree.*

*—Business program administrator*

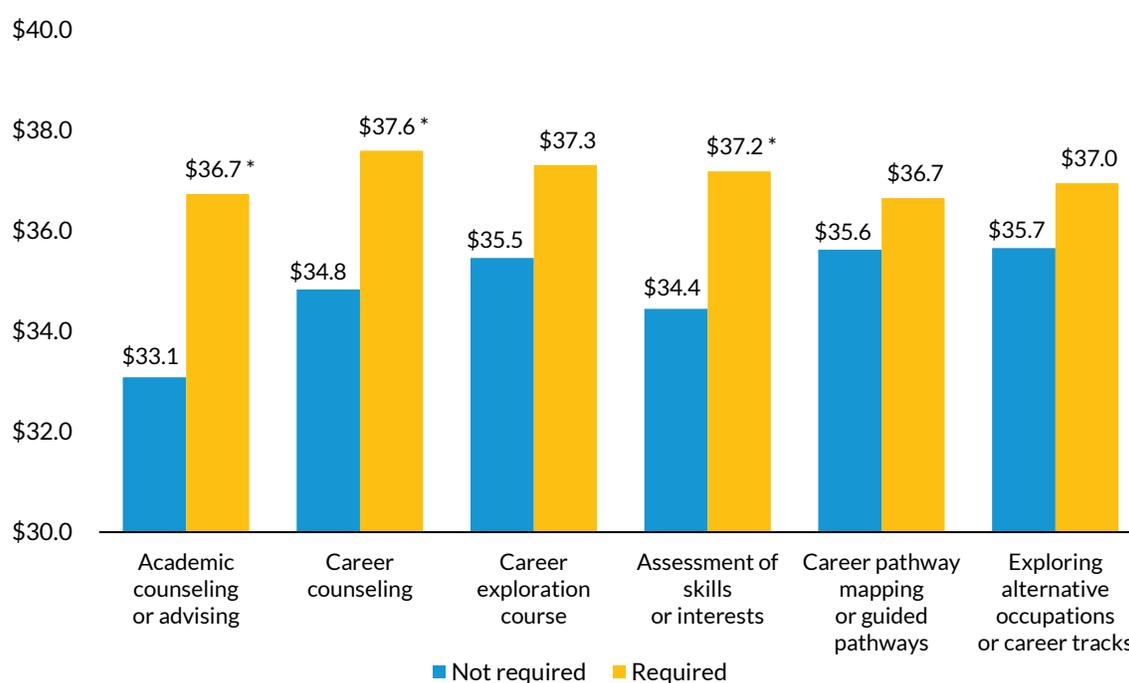
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**Most programs provided academic counseling early in their students’ academic trajectory, but not many provided early career counseling.** Figure 2 shows that more than three-quarters of nursing and business programs required academic counseling, but it was relatively rare for nursing (15 percent, not shown) or business (18 percent, not shown) programs to require students to meet with a career counselor early (as opposed to later) in the program. One nursing respondent noted that they wished their program had “better prepared students for success at the beginning of the program.” Another described that they “need to provide more support with learning strategies at the beginning of the program.”

**On average, nursing programs that required career counseling, academic counseling, or assessments of skills or interests had completers with slightly higher earnings than programs not**

requiring those strategies (figure 3). For academic counseling, the difference was about \$3,600 per year. For both career counseling and assessments of skills or interests, the difference was \$2,800 per year.<sup>11</sup> We do not see the same differences among business programs, whose completers had similar earnings whether these strategies were required or not.<sup>12</sup> However, as noted above, many administrators of business programs felt that counseling and navigation was the area that they most needed to improve.

**FIGURE 3**  
**Completer Earnings at Nursing Programs That Required Career Support Strategies**  
*Completer annual earnings (thousands of dollars)*



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Source: CTE Survey (November 2022 to March 2023) and publicly available data from the 2021 College Scorecard.

Note: N = 69.

\* = difference is statistically significant at the  $p < 0.1$  level.

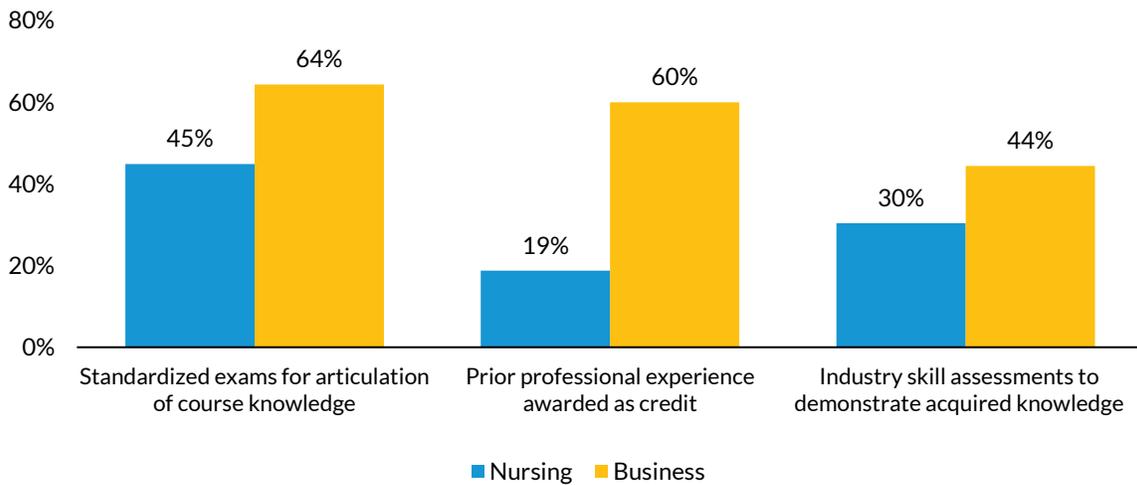
## Assessments to Award Credit for Prior Learning

Business programs also awarded students credit for prior learning and skills more commonly than nursing programs (figure 4). More than half of business programs awarded students credit using standardized exams of course knowledge (64 percent) or for prior professional experience (60 percent).

Fewer business programs used industry skill assessments of professional skills (44 percent) to award credit. Nursing programs used standardized exams most commonly (45 percent). It is possible that because nursing depends more on regulations and licensure than business, nursing program respondents feel that they have less flexibility to award credit for prior learning or experience. Also, compared with nursing students, business students may be more likely to have learned relevant skills in other contexts or in past jobs. We do not observe differences in completer earnings from business programs that awarded credit for prior learning compared with those that did not (appendix table C.1).

**FIGURE 4**  
**Strategies CTE Programs Used to Award Credit for Prior Learning or Skills**

*Percentage of responding programs*  
 100%



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**Source:** CTE Survey (November 2022 to March 2023).

**Notes:** Nursing *N* = 69; business *N* = 45. Percentages are out of all programs in each field of study. Percentages are how many programs at least occasionally awarded credit using each strategy.

# Building Skills for Work

We next focus on the strategies programs can use to ensure that students build the skills they need for work. We discuss two groups of strategies, work-based learning and workforce-aligned basic skills instruction. Hands-on work-based learning can build real-world skills and expose students to employers, giving them a chance to demonstrate their skills or even get a foot in the door. See box 3 for definitions of terms used in this section.

- **Work-based learning and simulated on-the-job experiences.** Evidence has shown that students not only gain workplace exposure through work-based learning, but also build academic, technical, and interpersonal skills (Darche and Nayar 2009). Evidence also suggests that work-based learning in both CTE and non-CTE programs can lead to better job prospects (Carnevale et al. 2022; Ross et al. 2018). Work-based learning is most effective when students are given real responsibilities and when it is sequenced to give students more workplace exposure each semester (Cahill 2016; Darche and Nayar 2009). Work-based learning is most equitable when students are paid for their time, which is especially important for those with low incomes.
- **Workforce-aligned basic skills instruction.** Students, including those who need to bolster their basic skills, benefit when education at all levels is workforce aligned. Relating basic skills instruction to real world scenarios and work-relevant topics (through contextualization) can help keep students engaged as they progress (Mazzeo, Rab, and Alssid 2003; Mohammadi and Grosskopf 2017). Furthermore, by integrating basic and occupational education, basic skills instruction may accelerate students' progress to credential completion. So far, however, there is little evidence of long-term employment-related gains (Martinson and Glosser 2022).

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### BOX 3

#### Key Definitions: Building Skills for Work

**Contextualized basic skills instruction** is the practice of using workforce-relevant material during foundational or basic skills instruction, so that students begin preparing for occupational training while they bolster their basic skills. For example, contextualized instruction in the nursing field could involve teaching math skills through real-life examples, such as medicine dosages.<sup>a</sup>

**Coteaching (or team teaching) of basic skills** is the practice of using two instructors who cooperate in the same classroom setting, with one delivering occupational or academic instruction and the other delivering basic skills or adult basic education instruction. Coteaching is integral to the I-BEST (or Integrated Basic Education Skills and Training) program model.<sup>b</sup>

**Integrated basic skills instruction** is the practice of combining basic skills instructions with occupational or academic instruction, so that the two occur concurrently in the same setting. Integrated basic skills instruction often, but not always, involves coteaching or team teaching (such as in the I-BEST model).

**Simulated on-the-job experience** is learning experience in an education or training setting that attempts to mimic experiences an individual would have while in the workforce.

**Work-based learning** involves education or training that occurs in a working environment. It can be paid or unpaid, and it often involves students filling a role similar to that of an employee. Clinicals are mandatory training experiences in health care employment settings, internships are entry-level employment positions (which may be paid or unpaid), co-op placements are employment opportunities for which a student is awarded credit, and apprenticeships involve full on-the-job training.

<sup>a</sup> Hope Cotner, Debra Bragg, Grant Goold, Eric Heiser, Darlene G. Miller, and Michelle Van Noy. 2021. *Designing and Delivering Career Pathways at Community Colleges: A Practice Guide for Educators*. Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, US Department of Education.

<sup>b</sup> "I-BEST Team Teaching Models," Washington State Board for Community and Technical Colleges, accessed July 27, 2023, <https://www.sbctc.edu/colleges-staff/programs-services/i-best/team-teaching-models>.

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## Work-Based Learning and Simulated On-the-Job Experiences

**Most nursing programs (94 percent) required work-based learning to complete the program, and the type they required was clinicals or practicums (figure 5).** No program indicated that their clinicals were paid, and nursing programs rarely used other types of work-based learning, although a few used internships (7 percent of respondents).<sup>13</sup> Unlike business programs, nursing education builds in work-based learning: federal requirements dictate that certified nursing assistants complete at least 16 hours

of instruction in a clinical setting (Loprest and Sick 2018), and some other nursing occupations require much more. However, research from prior education and training programs in the health care field found that work-based learning opportunities beyond clinical placements could increase students' job prospects and strengthen the hiring pipeline for employers (Eyster et al. 2022).

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*We wish we had more transition to practice opportunities where students or even graduates get more hands-on experience in a facility before making a final decision on an offer.*

*—Nursing program administrator*

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**Business programs used work-based learning less often than nursing programs.** The most likely reason for the difference is that business programs lack an equivalent of the clinicals required in nursing programs. The most commonly required type of work-based learning was internships (31 percent), followed by co-op placements (11 percent), apprenticeships (4 percent), and clinicals (4 percent).<sup>14</sup> We observe no significant difference in the earnings outcomes of business programs that required internships compared with those that did not.

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*We could have improved with more job shadowing, internships, or other experiences.*

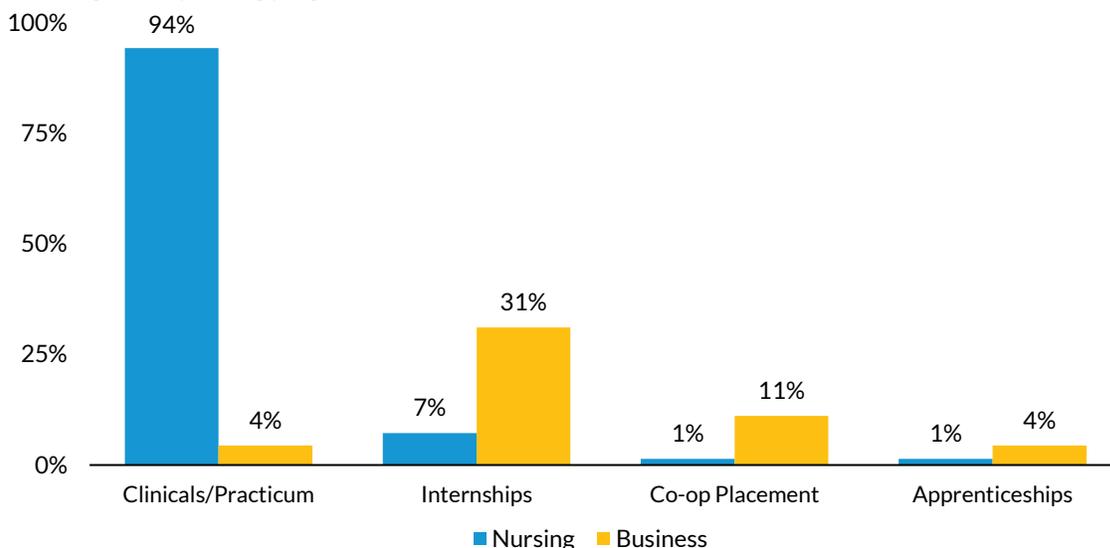
*—Business program administrator*

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FIGURE 5

**Strategies CTE Programs Used for Required Work-Based Learning**

Percentage of responding programs



URBAN INSTITUTE

Source: CTE Survey (November 2022 to March 2023).

Notes: Nursing N = 69; business N = 45. Percentages are out of all programs in each field of study.

When asked their top improvement priority to better support students' career goals, some business (17 percent) and nursing (16 percent) respondents described wanting to expand work-based learning or industry exposure opportunities. Specifically, business program administrators noted a lack of internships, apprenticeships, job shadowing, and opportunities for students to meet employers both on campus and via field trips or job fairs. Approximately one-third of business programs (36 percent) required some type of work-based learning for students (figure 6).

The CTE Survey also asked about the use of simulated on-the-job experiences. Most nursing program respondents (81 percent) reported using simulated on-the-job training for at least some of the curriculum (such as simulating what to do if a patient is found after having an adverse health event, like a fall), and at least one indicated that increased use of simulation was a positive change observed since the start of the pandemic.<sup>15</sup>

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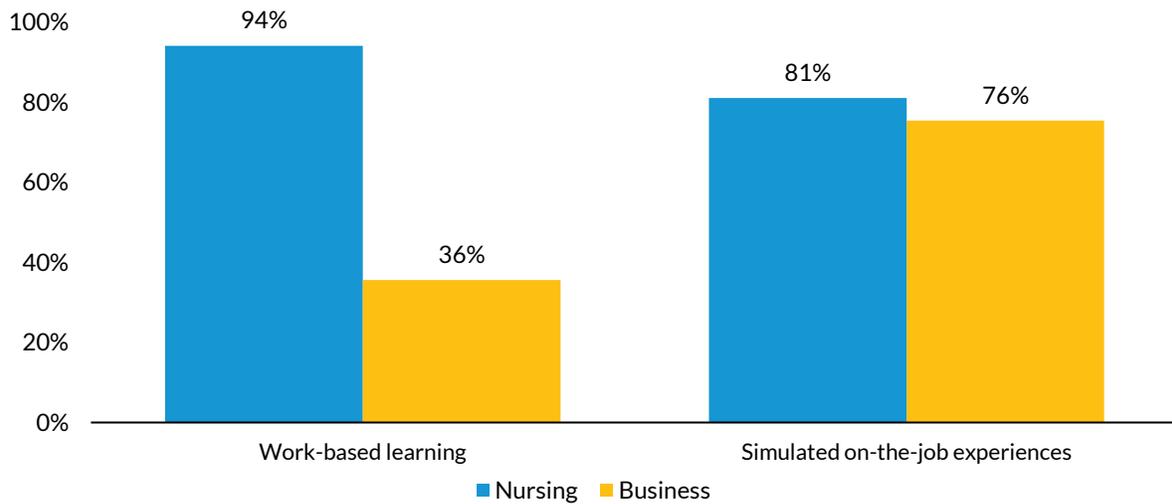
*Increased use of simulation is the way today's student learns.*

*—Nursing program administrator*

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Among business program respondents, 76 percent (figure 6) reported using simulated on-the-job experiences as part of their curricula. This suggests that even if work-based learning (such as internships) was not always required, business programs still attempted to build skills through simulated work experiences (such as by acting out a hypothetical scenario in which financial information is used to make a decision).

**FIGURE 6**  
**CTE Programs That Used Work-Based Learning (Any Type) or Simulated On-the-Job Experiences**  
*Percentage of responding programs*



URBAN INSTITUTE

Source: CTE Survey (November 2022 to March 2023).

Notes: Nursing N = 69; business N = 45. Percentages are out of all programs in each field of study.

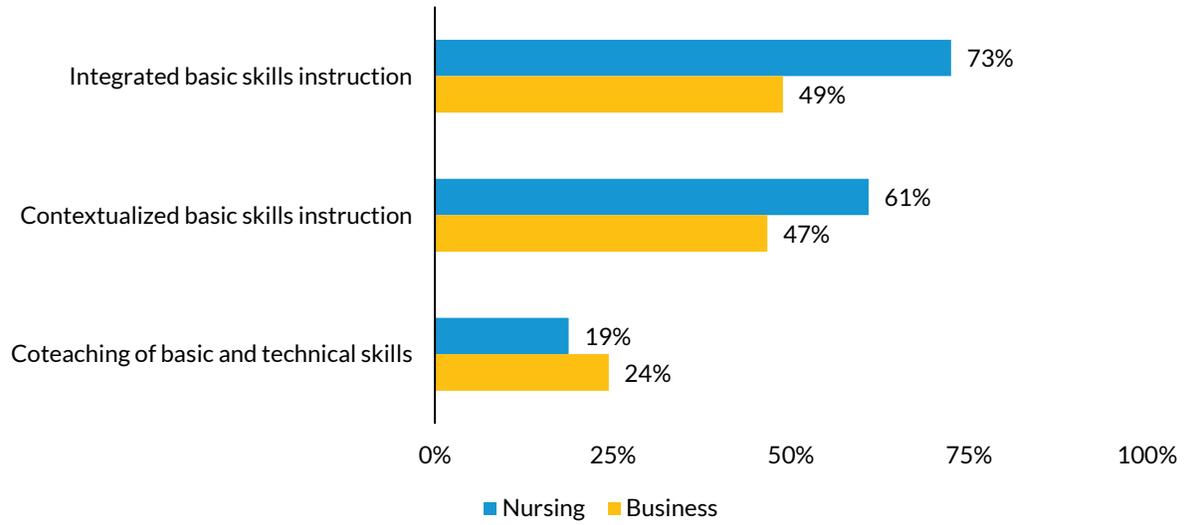
## Workforce-Aligned Basic Skills Instruction

Nursing and business programs both commonly integrate basic skills content with occupational skills training (73 percent and 49 percent, respectively) (figure 7). Such integration can help students persist in basic skills education by creating a connection to their future careers. Also, more than half of nursing programs (61 percent) and almost half of business programs (47 percent) used contextualized basic skills instruction. The survey results show that some nursing (19 percent) and business programs (24 percent) did use occupational and basic skills coteaching.

FIGURE 7

**Strategies CTE Programs Used for Workforce-Aligned Basic Skills Instruction**

*Percentage of responding programs*



URBAN INSTITUTE

Source: CTE Survey (November 2022 to March 2023).

Notes: Nursing *N* = 69; business *N* = 45. Percentages are out of all programs in each field of study.

# Connecting Students to Employment and Aligning with the Market

Even after students decide which credentials to pursue and build skills for work, they benefit from connections to employment opportunities. We next cover how programs help students access good jobs and how they work with employers to that end. Connecting new majority learners to employment is especially important, as these students may lack networks for finding jobs and benefit from new ways to signal their skills to employers. Underpinning program design is the need for market alignment, meaning that programs work closely with employers to set their students up for success in the workplace. See box 4 for definitions of terms used in this section.

- **Engaging employers to hire students and to support the program.** Strong employer relationships are important for ensuring students learn the skills they need to be hired by local employers (Scott et al. 2018). Programs can improve students' job prospects by encouraging employers to interview and hire completers, in some cases leading to formal interview and hiring agreements (Cotner et al. 2021).<sup>16</sup> Programs can also engage employers to advise on curricula and credentials, provide instructors or equipment, help with recruitment or marketing, and more.
- **Signaling students' skill attainment to employers.** Programs can help students signal their skill attainment by award intermediate or flexible credentials, such as stackable credentials and microcredentials, aligned with the skills employers desire. In fact, there is evidence that stacking multiple complementary credentials can lead to better student outcomes (Daugherty et al. 2023). Programs can also offer microcredentials within a degree program, enhancing completers' employment prospects by validating competency-based skills gained from short-term training (McGreal and Olcott 2022).
- **Supporting the market alignment of the program.** Market alignment is a concept that underpins most or all the strategies in this report. One intentional way programs can support their market alignment is by using data. Specifically, programs can use data collection and data systems to track completer outcomes in the labor market. When programs disaggregate employment outcomes by student characteristics (such as gender, race, and ethnicity) and by job quality characteristics (such as wages, benefits, and hours worked), they can find disparities and begin working to understand and address them (Anderson et al. 2021). To collect

employment outcomes data, programs must be invested in students after they complete and must work closely with employers to obtain the necessary data.

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#### BOX 4

### Key Definitions: Connecting Students to Employment

**Employer engagement** is a general strategy of working with employers to align programs with employer needs (and vice versa) so students can secure jobs.<sup>a</sup>

**Employer commitments** can involve documenting informal hiring goals or formalized hiring agreements between colleges and industry partners.

**Competency-based coursework** allows learners to apply related knowledge, skills, and abilities to successfully perform functions or tasks in a defined work setting.<sup>b</sup>

**Digital or e-portfolios** are a tool for students to demonstrate their skills and competencies to employers. Often personal websites that document work produced across the college experience, portfolios can be used by completers to showcase and communicate educational achievement.<sup>c</sup>

**Market alignment** refers to programs adjusting their operation, curriculum, and mode of delivery to provide students with skills and credentials that are up to date and in demand among employers. Working with advisory groups of employers who provide curriculum and program input is an example. Programs can also be market aligned by tracking the employment outcomes of their students and using that data to make adjustments that aim to foster student success and reduce disparities.

**Microcredentials** are certified documents that provide recognized proof of the achievement of learning outcomes from short educational or training activities.<sup>d</sup>

<sup>a</sup> Burt S. Barnow, and Shayne Spaulding. 2015. "Employer Involvement in Workforce Programs: What Do We Know?" in *Transforming US Workforce Development Policies for the 21st Century*, edited by Carl Van Horn, Tammy Edwards, and Todd Greene. Kalamazoo, MI: W. E. Upjohn Institute for Employment Research; Sheila Maguire, Joshua Freely, Carol Clymer, Maureen Conway, and Deena Schwartz. 2021. *Tuning in to Local Labor Markets: Findings from the Sectoral Employment Impact Study*. Philadelphia: Public/Private Ventures.

<sup>b</sup> Molly M. Scott, Lauren Eyster, Christian Collins, Semhar Gebrekristos, and Yipeng Su. 2020. "Better Connecting Students to Jobs: A Guide for Policymakers to Encourage and Support Integrating Competencies in Postsecondary Education and Training." Washington, DC: Urban Institute.

<sup>c</sup> Finley, Ashley. 2021. *How College Contributes to Workforce Success: Employer Views on What Matters Most*. Washington, DC: Association of American Colleges and Universities.

<sup>d</sup> Rory McGreal and Don Olcott Jr. 2022. "A Strategic Reset: Micro-Credentials for Higher Education Leaders," *Smart Learning Environments* 9 (2022).

## Engaging Employers to Hire Students and Support the Program

**Most programs reported having conversations with employers about improving hiring and retention of their students (figure 8).** Nearly all nursing programs (96 percent) and most business programs (84 percent) did so.<sup>17</sup> Also, most nursing (88 percent) and business (89 percent) programs reported that they had employer partners and that one or more of those partners hired program completers at least occasionally.

About two-thirds of nursing programs obtained informal commitments from at least some of their employer partners to hire (65 percent) or interview (64 percent) program completers. However, not all these conversations or partnerships with employers seem to have led to formal commitments or official agreements to hire or interview completers. Compared with informal commitments, formal agreements with employers were rarer among nursing programs. Only 13 percent of nursing programs had a formal agreement with at least one employer to interview completers, and 9 percent had such an agreement to hire completers.

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*The college could have worked more closely with employers. Obtaining commitments from industry partners for advisory boards has been an ongoing challenge.*

*—Business program administrator*

*We need to foster more agreements to hire and develop stronger alliances in the workforce.*

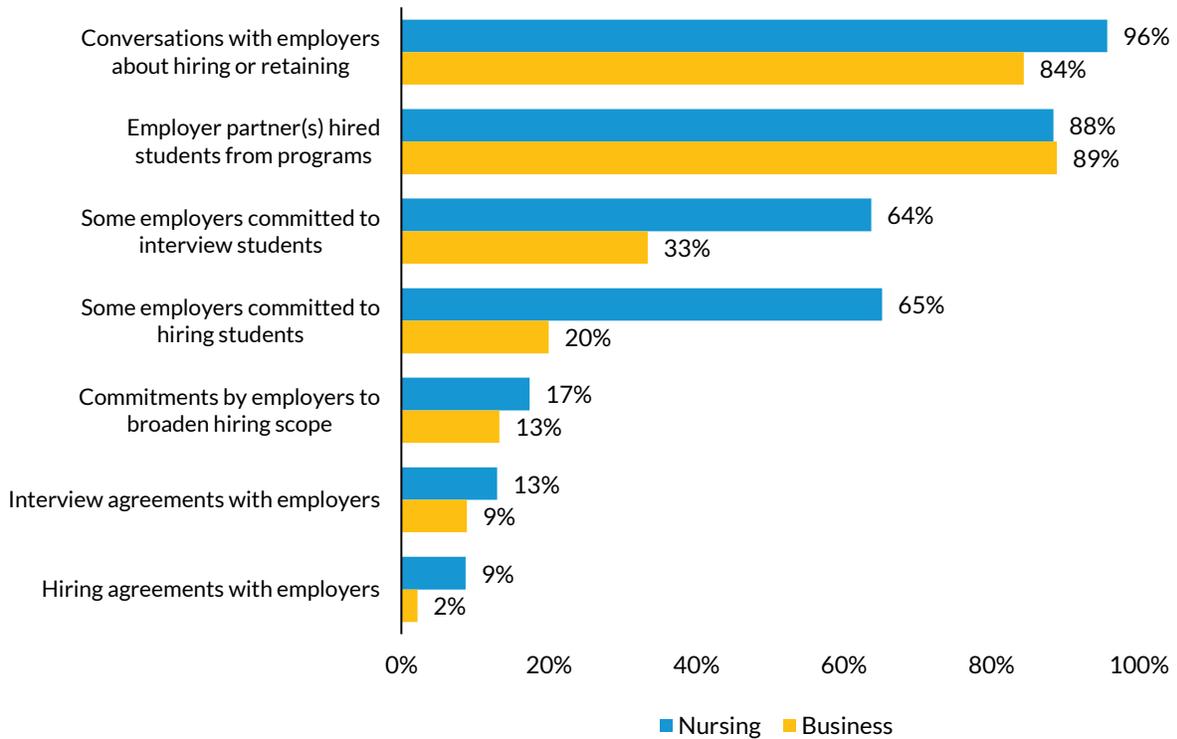
*—Nursing program administrator*

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**Business programs had fewer employer commitments and agreements compared with nursing programs (figure 8).** Despite having frequent conversations with employers, only one-third of business programs or fewer had any single type of commitment or agreement. Only 2 percent of business programs had a hiring agreement in place with any employer partner. In open text responses, one business program said the biggest improvement they could make would be to “make more connections and formalize partnerships with employers,” while another said they needed to “establish partnerships with area employers to interview our students.” In the nursing field, the high demand for employees and

need for licensure in entry-level positions may incentivize employers to make commitments to CTE programs.<sup>18</sup>

**FIGURE 8**  
**Strategies CTE Programs Used to Engage Employers in Hiring Their Students**  
*Percentage of responding programs*



URBAN INSTITUTE

Source: CTE Survey (November 2022 to March 2023).

Notes: Nursing N = 69; business N = 45. Percentages are out of all programs in each field of study. Programs can be in more than one category.

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*We need to make more employer connections and formalize partnerships and bring [employers] on campus to meet with students.*

*—Business program administrator*

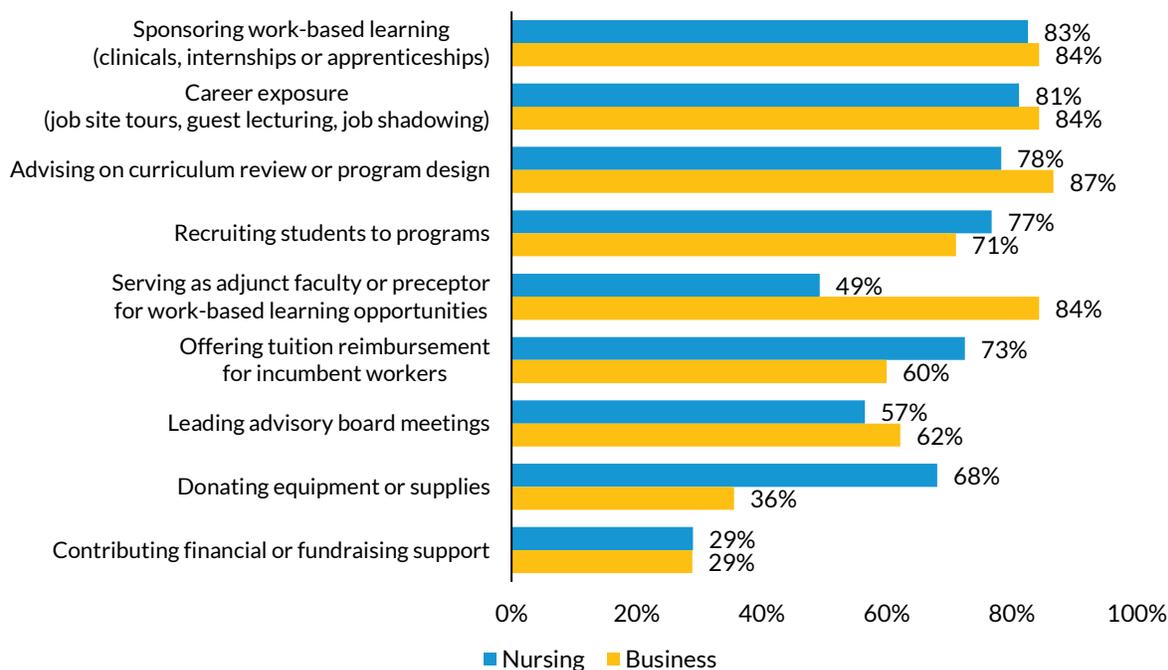
*We need to establish partnerships with area employers to interview our students.*

*—Business program administrator*

---

Aside from interviewing and hiring students, employer partners contributed to programs in many ways. Figure 9 shows the share of nursing and business programs that reported having at least one employer partner that contributes to several strategies.

**FIGURE 9**  
**Roles Employer Partners Played in CTE Programs**  
*Percentage of responding programs*



URBAN INSTITUTE

**Source:** CTE Survey (November 2022 to March 2023).

**Notes:** Nursing  $N = 69$ ; business  $N = 45$ . Percentages are out of all programs in each field of study. Percentages are the share of program administrators who stated at least one employer partner played the role. Contributing financial or fundraising support refers to financial support separate from donating equipment.

**Most nursing (83 percent) and business (84 percent) programs had at least one employer partner that sponsored work-based learning.** Employer partners also commonly collaborated with programs by offering career exposure (such as job site tours), advising on curriculum review or program design, and helping with program recruitment. However, employers serving as adjunct faculty or preceptors was more common in business programs (84 percent) compared with nursing programs (49 percent). Conversely, donating equipment or supplies was more common in nursing (68 percent) than in business (36 percent), which may be because more supplies are used in nursing education to replicate care environments.

**Contributing financial or fundraising support was the rarest activity, with only 29 percent of programs (in either field) reporting that at least one employer partner did so.** This suggests that the relationships between nursing and business programs and employers are based on mutually beneficial activities and in-kind contributions, versus employers providing direct financial support.<sup>19</sup>

**In open responses, one-quarter (26 percent) of business program administrators said the single most important way they could better help students achieve their career goals was through stronger employer partnerships.** Another 17 percent of business respondents said that establishing more employer agreements to generate work-based learning and career exposure opportunities was the most important change they could make, and 12 percent said employer partners should be more involved in completers' job recruitment and retention. In total, more than half (55 percent) of business respondents said their highest-priority improvement would have been some type of employer engagement, compared with 26 percent of nursing programs.

## Signaling Students' Skill Attainment to Employers

**About half of programs indicated that they used competency-based coursework to signal student skill attainment (figure 10).** Some business programs allowed their students to demonstrate their attainment of skills using digital portfolios (29 percent) or microcredentials (27 percent). About 1 in 10 nursing programs used digital portfolios (10 percent) or microcredentials (12 percent). Although studies on stacking nursing credentials have shown limited benefit to date, smaller microcredential or career pathway steps in nursing could be beneficial to some students and possibly to employers as well (Sick 2022).

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*[We need to] offer credential-based components of education.*

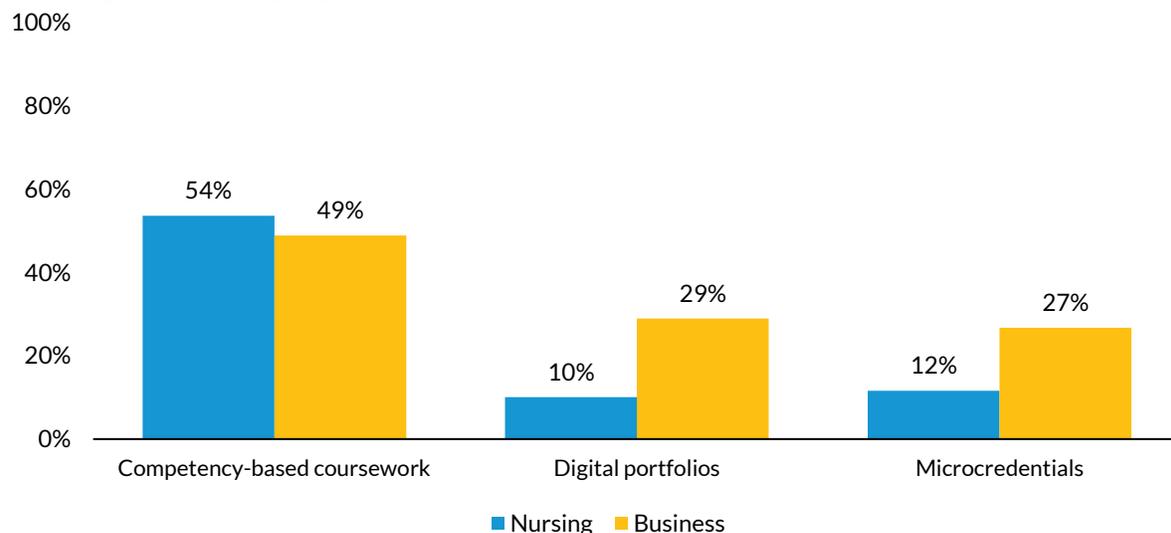
*—Business program administrator*

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**FIGURE 10**

**Strategies CTE Programs Used to Signal Attainment of Skills**

*Percentage of responding programs*



URBAN INSTITUTE

**Source:** CTE Survey (November 2022 to March 2023).

**Notes:** Nursing *N* = 69; business *N* = 45. Percentages are out of all programs in each field of study.

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*We wish we knew what specific skills that employers require in job ads, as they tend to be somewhat generic and nonspecific.*

*—Business program administrator*

*We wish we had more information from potential employers on their needs directly presented to the student.*

*—Nursing program administrator*

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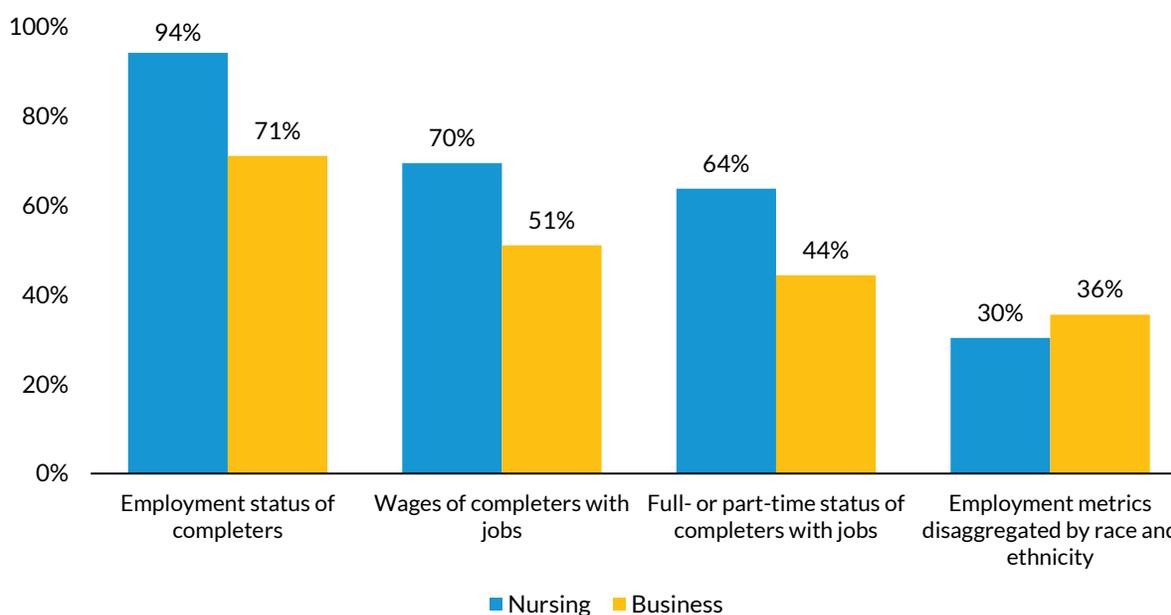
## Aligning the Program with the Market

Another way programs connected students to employment was by using strategies for market alignment, which provide students with the necessary skills to succeed in the labor market and align the supply of students with the skills local employers need (Cleary and Van Noy 2014; State Council of Higher Education for Virginia 2020). One such strategy is tracking the labor market outcomes of completers (figure 11).

FIGURE 11

### Employment Outcomes of Completers as Tracked by Programs

Percentage of responding programs



URBAN INSTITUTE

Source: CTE Survey (November 2022 to March 2023).

Notes: Nursing  $N = 69$ ; business  $N = 45$ . Percentages are out of all programs in each field of study.

**Nursing programs tracked whether completers got jobs more frequently than business programs did (94 percent versus 71 percent).<sup>20</sup>** Many nursing programs also tracked completers' wages (70 percent) and full- or part-time statuses (64 percent). Fewer business programs tracked wages and hours, but in both fields of study, if a program tracked whether completers got jobs, it usually also tracked their wages or hours worked.

Around one-third of nursing (30 percent) and business (36 percent) programs disaggregated their employment outcomes by race and ethnicity. Understanding academic and career gaps for students of color, which are rooted in a history of exclusion and unequal access, can help programs develop

interventions to improve outcomes for these students (Anderson et al. 2021). There is a gap between programs' ability to use data to target overall employment outcome improvements (e.g., whether completers are getting jobs) and their ability to use data to reduce disparities in employment outcomes (e.g., disaggregating placements, pay, and hours by race and ethnicity).

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*We wish we had better tracking of students following course and program completion.*

*—Business program administrator*

---

**Business respondents reported the need for additional data, while nursing respondents were more satisfied with the outcomes data they collected and analyzed.** Many nursing respondents (67 percent) reported in open text questions that they did not need any additional information to better help their completers get jobs. That could be because the demand for nurses is higher or because, as shown figure 11, most nursing programs already track employment outcomes.

Conversely, only 27 percent of business respondents felt they did not need additional information. In other words, most of them said it would be helpful to have additional information to enhance their ability to help completers get jobs. Business program administrators pointed to the three main areas of need: better labor market data (24 percent), more engagement from employers on their needs for employees (18 percent), and more information on student support needs (11 percent). One respondent said they wished they knew the “specific skills that employers require in job ads, as they tend to be somewhat generic and nonspecific.” Business respondents wanted to know their own students' needs and how to match those with known employer needs. Only 40 percent of business respondents stated that they had staff who regularly asked employers about wages and benefits, with one stating that “ongoing information regarding job placement and openings needs to be collected and communicated to students. This takes manpower that is difficult to come by.”

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*A better understanding of our students' motivations would be immensely helpful. Some of our students have clear goals for employment, while others are highly demotivated and have no career plans.*

*—Business program administrator*

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# Implications and Recommendations

The results from the CTE Survey show that business and nursing programs approached workforce alignment differently across each of our framework dimensions:

- **Supporting career decisions and providing navigation.** Business programs used strategies to support career decisions more often than nursing programs did. However, few business or nursing programs had specialized counselors or advisors, and few provided counseling or advising early in a student's academic career. One-fifth of business programs felt the best way they could help their graduates get good jobs was through improved academic or career counseling. Nursing programs with required counseling tended to have completers with higher earnings than nursing programs without required counseling; there was no such difference (positive or negative) at business programs. Some nursing programs felt that with high labor market demand for their completers (leading to high rates of job placement), they did not need to provide more career support. More business programs provided credit for prior learning than nursing programs.
- **Building skills for work.** Most business programs did not have a required work-based learning component (such as internships), and many business administrators described a desire to better engage with employers on work-based learning, including offering more work-based learning opportunities. Nearly all nursing programs had opportunities for work-based learning through their required clinicals, but most did not offer other types of work-based learning. Nursing programs used integrated basic skills more commonly than business programs did.
- **Connecting students to employment and aligning with the market.** Many business program respondents felt that employer engagement was their biggest weakness. Both nursing and business program staff often engaged in conversations with employers about hiring and retention of completers, but few had formal hiring or interview agreements or commitments from employers. Still, both nursing and business programs had employer partners that played a variety of roles, most commonly related to providing career exposure and advising on curricula. Programs often used competency-based coursework, but few awarded microcredentials. Many programs tracked student employment outcomes, but few did so in a way that could be disaggregated by race and ethnicity.

Based on the findings above as well as our understanding of the strategies supported by prior evidence, we can put forth recommendations for CTE programs seeking to align with the market. Some

reinforce current knowledge of the challenges programs experience. Others build on existing evidence and shed light on possible changes programs could make to support student success.

- **Business programs may benefit from more employer engagement and work-based learning.** Considering the lower completion rate of business compared with nursing programs, stronger engagement with local employers could help business students make a clear connection to employment opportunities. Providing more concrete work-based learning opportunities (via partnerships or agreements with employers) could create a stronger pipeline of workers to local employers in need of talent. One challenge business program administrators may face is that completers could hold myriad potential jobs. Programs may want to develop work-based learning opportunities across several sectors or occupation types. Our survey did not find a strong relationship between work-based learning requirements and higher earnings. Yet, other studies have suggested that work-based learning in CTE programs is associated with better jobs (Ross et al. 2018), and a review of available evidence suggests that work-based learning is beneficial (Carnevale et al. 2022). Clinical placements are prevalent in nursing programs, but prior research suggests that CTE students and employers in the health care field could also benefit from work-based learning opportunities beyond clinicals (Eyster et al. 2022).
- **Programs could collect disaggregated outcomes data to encourage equitable labor market outcomes for new majority learners, including those who have low incomes and those who are from marginalized communities.** Education and labor market outcomes are often not equitable, including for short-term CTE programs in health care<sup>21</sup> and business (Taylor et al. 2022). Inequities manifest in access to trainings that lead to better pay, as shown by data from health care education and training programs in which participants of color were underrepresented (Loprest and Sick 2021). Labor market inequities faced by students of color and other new majority learners are sometimes attributable to unequal pay, but can also involve inequitable access to advancement opportunities, favorable working conditions, preferable work schedules, and benefits. For programs to address these inequities would require not only a proactive effort to provide students with support and outreach, but also the ability to identify and track whether programs are closing equity gaps. The CTE Survey shows that nursing and business programs are tracking employment outcomes at least somewhat regularly, but they are not tracking the quality of jobs and are not able to disaggregate those outcomes by race and ethnicity. Tracking employment outcomes in a formalized and detailed way could help programs foster a closer relationship with employers, as well as an ongoing relationship with completers.

- **The evidence suggests that counseling (whether academic or career) is important.** Prior literature cited in Spaulding and Sirois (2022) suggests that counseling is a crucial way to help students navigate career pathways and move effectively toward their goals. Our results reinforce this finding, from both respondents' insights and survey data showing completers of nursing programs that required counseling had higher earnings than completers of programs that did not. Still, few business programs engaged students with career counseling early in their enrollment, though several reported that they wished they did so. Early career counseling could also help business programs increase their completion rates by providing students with direction, decisionmaking support, and goal setting.
- **Programs could consider enhancing employer engagement by formalizing relationships with employers.** Several programs wished they had more formal agreements with employers. Formal hiring and interview agreements require both parties to put "skin in the game," which could increase employer investment in the quality of the program and vice versa. Prior research from health care education and training programs found instances when employers worked closely with training programs; being impressed with the quality of the education and the completers, the employers subsequently committed to provisional hiring with the ability to transition completers into a permanent position (JBS International and Perkul 2019). Furthermore, in a health care demonstration project in which programs and employers worked closely, one of the most common engagements by employers was to agree to offer completers "special hiring considerations" (Eyster et al. 2022).
- **High demand for nursing workers leads to relatively easy job placement for most completers, but prior evidence suggests that efforts to improve job retention would help.** While many entry- and mid-level nursing learners get jobs upon completion, employee retention and advancement remain significant challenges (Loprest and Sick 2018). Furthermore, wages in entry-level nursing are low and the working environment is challenging. Educators and employers should work together to center students' well-being and improve their career outlook beyond their initial job placement. Engaging with students early on their career pathways and offering career or retention specialists could improve the retention and career advancement opportunities of nursing certificate completers. Possible strategies include carefully engaging in job placement so that students get jobs with employers who are a good fit, following up with students after they become employed, working with employers to build skills in a way that leads to more achievable career pathways (e.g., smaller steps), working with employers to provide on-the-job or job site training or apprenticeships for advancement

beyond the entry level, and working with employers to provide stipends or bonuses for training and retention.<sup>22</sup>

In this report we show the results of a survey that linked program strategies with earnings outcomes. Because our survey had relatively few respondents, we are not able to resolve with confidence some differences in earnings among groups of programs using different strategies. We therefore cannot say to what extent most strategies are (or are not) associated with student outcomes. In Scott, Sick, and Wilson (2022) we found that in some fields of study, program design likely accounted for substantial variance in student outcomes.

Appendix table C.1 shows earnings differences for all key strategies mentioned in this report, and some are relatively large but not reported as findings because the sample is small. These differences are worthy of further investigation, and future efforts are needed to connect detailed program-level data with student outcomes. Programs should also consider evaluating their outcomes not only by student characteristics and who succeeds, but also by the strategies that students do (and do not) have access to.

The CTE Survey is a step in that direction, and it highlights several promising strategies to support students in getting good jobs, as well as several strategies that literature suggests more programs should use. It also shows how approaches differ in a more structured career pathways field (nursing) compared with one that is less well defined (business), and how programs in each type of field engage with employers. Program administrators can consider whether the evidence and recommendations in this report align with practices they already use place or form new ideas about priorities for supporting students.

# Appendix A. CTE Survey Instrument

The survey instrument is available [here](#).

# Appendix B. Changes Following the COVID-19 Pandemic

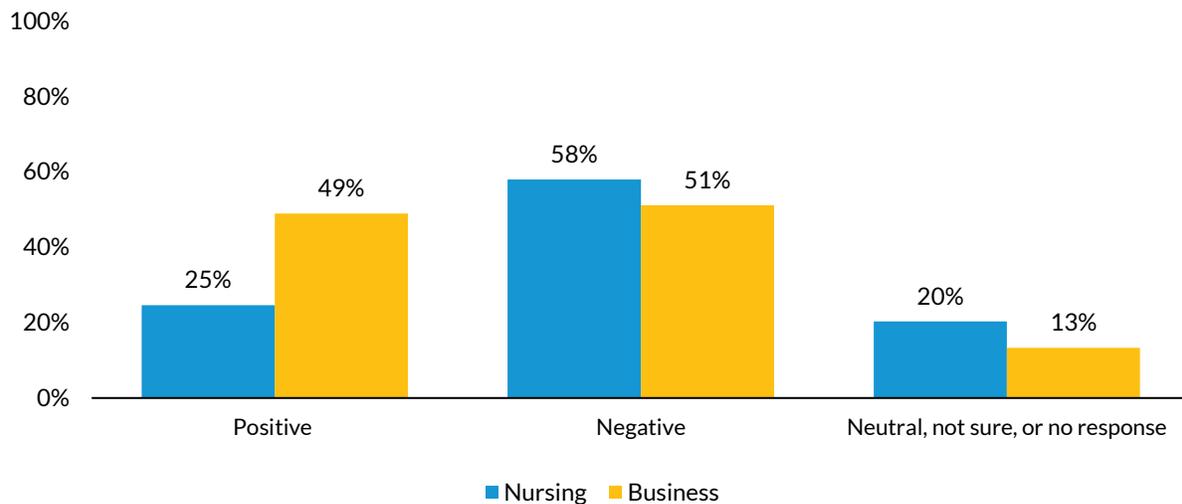
The CTE Survey asked programs to report the strategies they used in the year before the COVID-19 pandemic. As noted in the limitations section of the report, to fully understand how programs adapted operations after March 2020, additional data would be needed about strategies CTE programs used after the start of the pandemic. However, the CTE Survey did ask programs in open text questions about the primary changes to their programs and whether they viewed those changes as positive or negative.

Nursing and business program respondents felt differently about the changes they experienced during the pandemic (figure B.1). Compared with only 25 percent of nursing programs, almost twice as many business programs (49 percent) felt that the changes were positive.<sup>23</sup> More than half (58 percent) of nursing programs described the changes as negative, which was a slightly larger share than business programs (51 percent).

FIGURE B.1

## CTE Program Perceptions of Changes Experienced during the COVID-19 Pandemic

Percentage of responding programs



URBAN INSTITUTE

Source: CTE Survey (November 2022 to March 2023).

Notes: Nursing N = 69; business N = 45. Percentages are out of all programs in each field of study. Percentages do not add to 100 because mixed responses were counted as both positive and negative.

In open text questions, the most common change reported by business programs (38 percent) was an adjustment to a remote or virtual environment. Some programs described challenges with that transition, but many described some benefits once the challenges were addressed. The CTE Survey asked programs if at least some online or virtual classes were offered before the pandemic, and all business programs said they were (compared with only 35 percent of nursing programs) (table 1). So, despite the challenges of adapting to a more virtual environment, business programs may have been more prepared to adapt, given that they had already offered online learning options.

The patient care aspect of nursing made adapting to a virtual environment more challenging. One program said that “teaching via Zoom left a deficit with skills, and not being able to participate in clinicals did not help students in any way.” Picking the right job may also have been a challenge, as “fewer face-to-face opportunities for clinical experiences means students cannot get a realistic understanding of the [job] market during [clinical] rotations and it’s difficult to know what they want.” Exposure to strain on the health care system may have also degraded students’ education, as one program reported that “[health care] facilities are ridiculously short staffed, and students are exposed to less-than-optimal care practices [during clinicals].”

The few nursing program respondents who felt the changes were positive typically said that employer involvement and labor market demand had increased, possibly because the pandemic increased the need for health care workers. One respondent indicated that their “local hospital is paying the tuition [of workers] to attend our program, and many local facilities contact us to recruit our students before graduation and to offer incentives to work for them.” Programs also reported increases in hiring by acute care facilities and other, more “desirable” facilities that had not previously been as involved. One in ten nursing programs (12 percent) reported that the main change was an increase in employer demand and more job opportunities for students.

A substantial portion of both nursing (28 percent) and business (24 percent) programs signaled that student interest and motivation declined during the pandemic. Programs also mentioned that students experienced heightened stress and mental health challenges. Specifically, programs described challenges with anxiety, stress, mental health, home life, socioeconomic situations, resilience, preparation, drive, and more. Some nursing (12 percent) and business (16 percent) programs said the main change was a heightened need for student supports.

# Appendix C. Supplemental CTE Survey Response Characteristics

Appendix C contains supplemental survey response characteristics that may be of some interest but that were omitted from the main body of the report.

TABLE C.1

## Differences in Annual Completer Earnings between CTE Programs Using or Not Using Workforce Alignment Strategies

Strategy	Nursing			Business		
	%	Earnings difference (\$)	p	%	Earnings difference (\$)	p
Academic counseling/advising	80	3,654	0.06	78	-1,285	0.58
Career counseling	42	2,766	0.08	51	1,062	0.58
Career exploration course	29	1,857	0.29	47	-460	0.81
Assessment of skills/interests	57	2,741	0.09	64	1,504	0.46
Career pathway mapping or guided pathways	36	1,029	0.54	58	1,896	0.33
Exploring alternative occupations or career tracks	26	1,288	0.48	49	3,036	0.11
Standardized exams for articulation of course knowledge	45	487	0.76	64	620	0.76
Prior professional experience awarded as credit	19	819	0.69	60	1,009	0.61
Industry skill assessments to demonstrate acquired knowledge	30	132	0.94	44	-1,069	0.58
Internships	7	2,838	0.36	31	-1,648	0.43
Apprenticeships	1	-770	0.91	4	-1,426	0.76
Clinicals/practicum	94	-2,025	0.55	4	2,433	0.60
Co-op placement	1	-5,304	0.43	11	-1,791	0.56
Work-based learning (any)	94	-2,025	0.55	36	-283	0.89
Simulated on-the-job experiences	81	-4,654	0.02	76	1,144	0.61
Curriculum engaging students with workforce-aligned examples	61	1,100	0.50	47	253	0.90

Strategy	Nursing			Business		
	%	Earnings difference (\$)	p	%	Earnings difference (\$)	p
Curriculum including integrated/contextualized instruction in both basic and industry-required skills	72	-1,206	0.50	49	1,009	0.60
Some or all courses cotaught by a technical skills and basic academic skills instructor	19	1,536	0.45	24	-430	0.85
Conversations with employers about hiring or retaining completers	96	-4,773	0.22	84	-2,559	0.34
Employer partner(s) hired students from programs	88	96	0.97	89	393	0.90
Some employers committed to interview students	64	-97	0.82	33	-710	0.94
Some employers committed to hiring students	65	-937	0.19	20	-1,492	0.44
Commitments by employers to broaden hiring scope	17	1,530	0.47	13	-1,083	0.70
Interview agreements with employers	13	1,072	0.65	9	-36	0.99
Hiring agreements with employers	9	-377	0.89	2	1,549	0.81
Sponsored work-based learning (clinicals, internships or apprenticeships)	83	-1,127	0.59	84	-1,259	0.64
Career exposure (job site tours, guest lecturing, job shadowing)	81	871	0.67	84	-1,246	0.64
Advising on curriculum review or program design	78	887	0.65	87	-128	0.96
Recruiting students to programs	77	773	0.68	71	1,627	0.45
Serving as adjunct faculty or preceptor for work-based learning opportunities	49	-88	0.96	84	-113	0.97
Offering tuition reimbursement for incumbent workers	72	-307	0.86	60	-166	0.93
Leading advisory board meetings	57	-935	0.56	62	475	0.81
Donating equipment or supplies	68	257	0.88	36	-3,515	0.08

Strategy	Nursing			Business		
	%	Earnings difference (\$)	p	%	Earnings difference (\$)	p
Contributing financial or fundraising support	29	2,282	0.19	29	-4,155	0.05
Competency-based coursework	54	2,281	0.15	49	-125	0.95
Digital portfolios	10	-2,702	0.31	29	472	0.83
Microcredentials	12	-1,511	0.55	27	2,237	0.30
Employment status of completers	94	7,471	0.03	71	1,379	0.52
Wages of completers with jobs	30	479	0.78	49	1,901	0.32
Full- or part-time status of completers with jobs	64	-531	0.75	44	-237	0.90
Employment metrics disaggregated by race and ethnicity	30	-147	0.93	36	1,067	0.60
Networking opportunities or job fairs	94	-8,242	0.01	98	8,789	0.18
Mock interviews or resume support	91	-149	0.96	98	-685	0.92
Career guidance or mentorship by faculty or staff	90	-5,440	0.04	96	9,232	0.04
Career guidance or mentorship by employers	75	-1,644	0.37	84	1,316	0.62
Personalized job search support	62	-822	0.62	93	3,019	0.44

**Source:** CTE Survey (November 2022 to March 2023), 2021 College Scorecard.

**Notes:** Nursing *N* = 69; business *N* = 45. Percentages are out of all programs in each field of study. *P*-values are for *t*-tests of the differences in average annual earnings for programs using a strategy compared with programs that did not use that strategy.

TABLE C.2

## Credit-Bearing Trainings within CTE Programs

Training type	N	%
<b>Nursing</b>		
Licensed practical/vocational nurse training	64	93
Nurse/nursing assistant/aide and patient care assistant	23	33
Practical nursing, vocational nursing and nursing assistants, other	13	19
<b>Business</b>		
Business administration and management, general	45	100
Office management and supervision	13	29
Business administration, management and operations, other	11	24
Logistics and materials management	5	11
Retail management	5	11
Project management	4	9
Customer service management	2	4
Nonprofit/public/organizational management	2	4
Operations management and supervision	2	4
Transportation/transportation management	2	4
E-commerce/electronic commerce	1	2
<b>Metalworking<sup>a</sup></b>		
Welding technology/welder	12	86
Machine tool technology/machinist	8	57
Organizational leadership	4	29
Computer numerically controlled (CNC) machinist technology/CNC machinist	3	21
Machine shop technology/assistant	3	21
Metal fabricator	3	21
Tool and die technology/technician	2	14
Ironworking/ironworker	1	7
Precision metalworking, other	1	7
Sheet metal technology/sheetworking	1	7

Source: CTE Survey (November 2022 to March 2023).

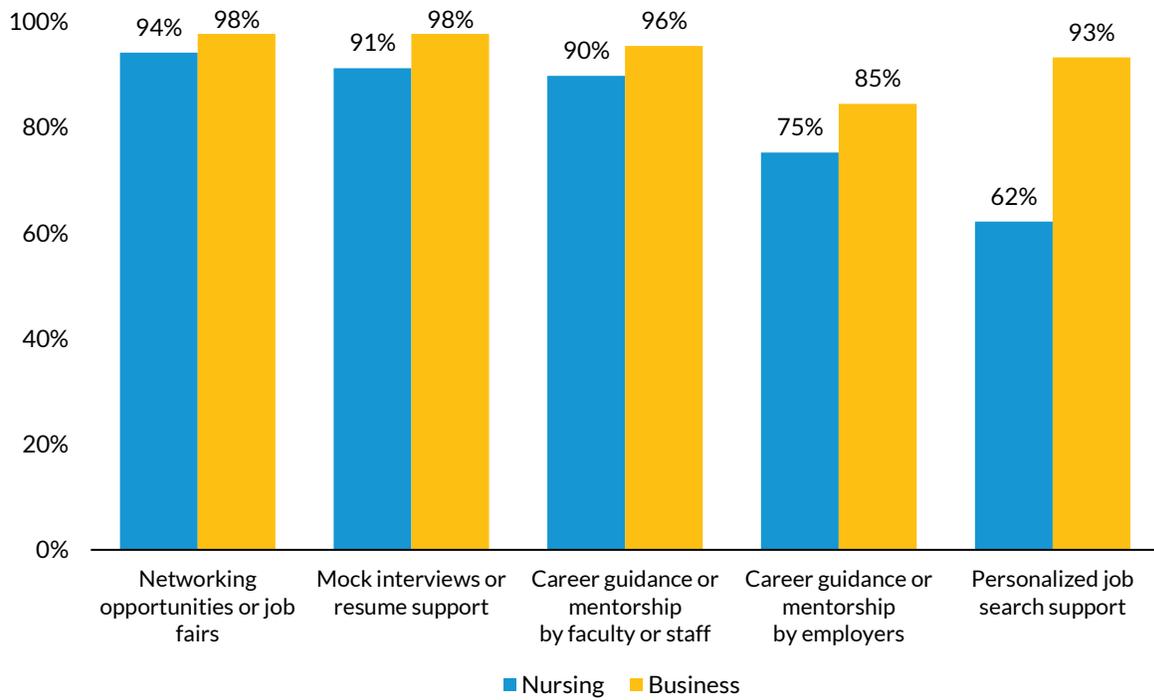
Notes: Nursing  $N = 69$ ; business  $N = 45$ ; metalworking  $N = 14$ . Percentages are out of the total  $N$  in each field of study. Percentages do not add to 100 within each field of study because a respondent could select more than one type of training they were responding on behalf of. Respondents were instructed to answer for the “typical program offered at their college.”

<sup>a</sup>Metalworking responses are omitted from our analysis because of the small sample size.

FIGURE C.1

**CTE Programs Offering Career Services**

*Percentage of responding programs*



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Source: CTE Survey (November 2022 to March 2023).

Notes: Nursing N = 69; business N = 45. Percentages are out of all programs in each field of study.

# Notes

- <sup>1</sup> “Who Are New Majority Learners?” Education Design Lab, accessed June 27, 2023, <https://eddesignlab.org/newmajoritylearners/>.
- <sup>2</sup> Our team also surveyed precision metalworking certificate programs, however, because the number of responses was small ( $N = 14$ ), those results are omitted from our analysis.
- <sup>3</sup> According to National Center for Education Statistics data, among CTE students enrolled in for-credit courses who declared a major in a CTE field of study in the 2015–16 academic year, health sciences was the most common field of study, accounting for roughly 30 percent of enrolled students. The next largest fields were business and marketing (20 percent) and engineering and architecture (9 percent). See “Postsecondary Taxonomy,” accessed June 1, 2023, [https://nces.ed.gov/surveys/ctes/tables/postsec\\_tax.asp](https://nces.ed.gov/surveys/ctes/tables/postsec_tax.asp); table 303.70, [https://nces.ed.gov/programs/digest/d17/tables/dt17\\_303.70.asp](https://nces.ed.gov/programs/digest/d17/tables/dt17_303.70.asp); and table P178, <https://nces.ed.gov/surveys/ctes/tables/p178.asp>.
- <sup>4</sup> The nursing and business fields we studied are defined and classified by their four-digit classification of instructional programs (CIP) codes. Fields of study defined at the four-digit CIP code level may contain various specific credentials defined at the six-digit CIP code level, which may have substantial differences. We considered the six-digit CIP code homogeneity of nursing and business programs when choosing these fields of study to survey.
- <sup>5</sup> “Occupational Requirements Survey: Credentials,” US Bureau of Labor Statistics, accessed August 23, 2023, <https://www.bls.gov/ors/factsheet/credentials.htm>.
- <sup>6</sup> To protect privacy, the College Scorecard suppresses earnings data for small programs, whose students are more easily identified. To examine earnings outcomes, we only surveyed programs for which those data were not suppressed. Therefore, the CTE Survey is of larger programs only.
- <sup>7</sup> The CTE Survey does not represent all CTE programs. The sample was drawn from programs with nonsuppressed earnings data in the 2021 College Scorecard (i.e., larger programs), and we only fielded surveys to programs with publicly available contact information, which was more common at public institutions than at private institutions. We identified 639 nursing programs and 527 business programs from the College Scorecard as targets to survey. Of those, we obtained contact information for and fielded surveys to 422 nursing (66 percent of suitable programs) and 316 business programs (60 percent of suitable programs).
- <sup>8</sup> The CTE Survey originally sought responses about strategies used before the COVID-19 pandemic, but a second version addressed strategies after the start of the COVID-19 pandemic. Few post-COVID-19 responses ( $N = 3$ ) were received, and the results here only pertain to strategies used before the COVID-19 pandemic.
- <sup>9</sup> For example, nursing program respondents replying on behalf of only licensed practical/vocational nursing had complete earnings of approximately \$37,100 per year compared with earnings of \$33,900 per year for respondents replying on behalf of both licensed practical/vocational nursing and certified nursing assistant/aide or patient care assistant (significant to the  $p < 0.1$  level). Although we consider these differences in our analysis, program administrators responding on behalf of several CTE trainings may have reported different strategies than administrators responding on behalf of only one type of CTE training.
- <sup>10</sup> The relationship between the number of strategies to support career decisions and earnings holds when we control for the specific field of study in each program, the level of institution, and whether institutions are public or private ( $p < 0.10$ ). We observe a positive earnings difference at business programs that use more strategies but it is not statistically significant.

- <sup>11</sup> An exploratory analysis shows that the associations remain between earnings and career counseling, academic counseling, or assessments of skills or interests, remain, even when we control for the specific fields of study of each program, the level of institution, and whether institutions are public or private.
- <sup>12</sup> Students required by business programs to explore alternate careers had earnings \$3,000 higher than students not required to use that strategy, and those requiring career pathway mapping had earnings \$1,900 higher. Conversely, average earnings were about \$1,300 lower at business programs requiring academic counseling. None of those differences were statistically significant to the  $p < 0.1$  level.
- <sup>13</sup> In Spaulding, Hecker, and Bramhall (2020), nursing program interviewees indicated that payment to students for clinicals was not allowed, but the reasons for this were unclear. To our knowledge, no law or regulation prevents payment to nursing students for their time in clinicals, but payment is also not legally required.
- <sup>14</sup> One-quarter (24 percent) of business programs indicated that students were paid for work-based learning.
- <sup>15</sup> We find that nursing programs using simulated on-the-job experiences had lower annual completer earnings than those that did not, by \$4,700 ( $p = 0.02$ ; appendix table C.1). Further investigation is needed to fully explain that difference. We find that business programs with simulated on-the-job experiences have \$1,100 higher annual completer earnings on average, but that difference is not statistically significant ( $p = 0.61$ ).
- <sup>16</sup> Madeline Brown and Lauren Eyster, "Four strategies community colleges are using to connect their students to employment," *Urban Wire* (blog), Urban Institute, January 16, 2020, <https://www.urban.org/urban-wire/four-strategies-community-colleges-are-using-connect-their-students-employment>.
- <sup>17</sup> The CTE Survey also asked about the frequency of employer engagements, and the largest shares of nursing (62 percent) and business (49 percent) programs reported doing so annually.
- <sup>18</sup> Prior evidence shows that myriad factors cause challenges with retention and lead to a persistent demand for new workers in the entry-level nursing field (Loprest and Sick 2018). Those issues have only intensified since the start of the COVID-19 pandemic (Nathan Sick, "Strategies to Improve the Certified Nursing Assistant Workforce Crisis," *Urban Wire* (blog), Urban Institute, January 31, 2023, <https://www.urban.org/urban-wire/strategies-improve-certified-nursing-assistant-workforce-crisis>).
- <sup>19</sup> Differences in average annual completer earnings at programs with employers playing the roles in figure 9 (compared with programs without employers playing those roles) were generally modest and not statistically significant. The exceptions were employers donating equipment or supplies and contributing financial or fundraising support at business programs, which had  $-\$3,500$  ( $p = 0.08$ ;  $N = 16$ ) and  $-\$4,200$  ( $p = 0.05$ ;  $N = 13$ ) differences in annual earnings, respectively (appendix table C.1). Additional data would be needed to understand whether the trend persists.
- <sup>20</sup> We observe a substantial difference in annual earnings of \$7,500 ( $p = 0.03$ ) among nursing programs tracking completers' employment status compared with those that did not. However, because of the small sample of programs not tracking completers' employment status ( $N = 4$ ), further investigation into this difference is needed (appendix table C.1).
- <sup>21</sup> Faith Mitchell, "Five Strategies for Building and Sustaining the Black Nursing Workforce," *Urban Wire* (blog), Urban Institute, June 26, 2023, <https://www.urban.org/urban-wire/five-strategies-building-and-sustaining-black-nursing-workforce>.
- <sup>22</sup> Sick, "Strategies to Improve Workforce Crisis."
- <sup>23</sup> Some programs said that both positive and negative changes were observed during the COVID-19 pandemic without one outweighing the other, in which case the programs were counted in both categories.

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# About the Authors

**Nathan Sick** is a senior research associate in the Income and Benefits Policy Center at the Urban Institute, where he focuses on workforce development research and program evaluation. He conducts quantitative and qualitative research using a variety of methods. His work has centered on employment, training, and career pathways in the health care sector; postsecondary education and career-connected learning; supports for parenting students; data management and data infrastructure development; and technical assistance.

**Amanda Briggs** is a senior research associate on the workforce development team at the Urban Institute, where her research focuses on postsecondary and workforce development program evaluation and employer involvement in education and training. She is deputy director of the CTE CoLab, a multiyear research-to-practice collaborative involving five national partner organizations and 12 community and technical colleges, with the goal of advancing equitable academic and career outcomes for students of color in postsecondary career and technical education.

**Jincy Wilson** is a research analyst in the Income and Benefits Policy Center. She is engaged in quantitative and qualitative research involving access to postsecondary education and career opportunities, apprenticeships, safety net issues, and care for the elderly.

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