



# THE MISSING PIECE

*Quantifying Non-Completion Pathways to Success*



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## ACKNOWLEDGMENTS

THIS LEARNINGWORKS INQUIRY GUIDE was prepared in association with WestEd. An Oakland-based organization, LearningWorks is devoted to strengthening student achievement in community colleges. WestEd is a research, development, and service agency that works with education and other communities to promote excellence, achieve equity, and improve learning for children, youth, and adults.

The principal authors of this guide were Kathy Booth, Senior Research Associate at WestEd, and Peter Riley Bahr, Associate Professor of Education at the University of Michigan. It is based on a recent study that Bahr conducted for WestEd, as well as earlier research by Bahr that was published in the journals *Research in Higher Education* and *New Directions for Institutional Research*. It follows on two previous pieces published by LearningWorks, *What's Completion Got to Do With It? Using Course-Taking Behavior to Understand Community College Success* (2012) and *Segmentation Model of Assisting Course-Taking Patterns: A Research Methodology and Discussion Guide*. (2012)

See the Additional Resources section at the end of this guide for a listing of related guides and resources on the topic of skills-builder students.



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## INTRODUCTION

INCREASINGLY, community colleges are measuring success by the outcomes their students achieve, in addition to the number of students they serve. The national push for completion of degrees, certificates, and transfer to four-year institutions has helped to focus colleges on measurable goals. However, while completion outcomes are important metrics of success, they do not measure all of the goals of community colleges. There are also significant metrics of success related to workforce development—like gains in earning and job retention—which can occur outside of the completion framework. Examining non-completion pathways and better measuring employment outcomes can help colleges develop stronger programs that reflect the diverse goals of their students.

Community colleges support a variety of job training programs that provide significant benefits to students but do not result in college certificates or degrees, such as apprenticeship programs, courses that prepare students to earn an industry certification or professional license, and contract education programs that enable employees to upgrade their skills in fields such as technology or public safety. In addition, some community college students take only the few courses that they need to secure a new job or advance in an existing one, with no intention of completing a credential or transferring. As more states seek to link funding to student outcomes, colleges need ways to measure and evaluate non-completion successes, just as they have developed methods of measuring completion outcomes.

By better understanding the diverse pathways that students are forging to reach their goals, community colleges can find new ways to measure and support students' success in the workforce. Many career and technical education faculty have stories about students who obtained good-paying jobs before they completed their program of study. Though anecdotal reports of this nature are encouraging, community colleges need a way to measure such non-completion successes in a large-scale, systematic manner: How can students who successfully achieve their

employment goals despite not completing an institutional credential be distinguished from those who do not meet their goals and drop out of college?

One way to measure non-completion success is to look at course success rates. Students who pass their courses have acquired skills that may transfer directly to workplace gains. Another way is to examine data on students' pre- and post-college earnings. For instance, many colleges survey former students to determine whether their earnings increased once they left college. Furthermore, working with state agencies, colleges increasingly have the opportunity to utilize unemployment insurance data as an additional source of earnings information on their former students.

**Skills-Builder Students**

In California, several recent studies conducted by Peter Riley Bahr (2010, 2011) helped to shed light on community college students' goals and their completion and non-completion outcomes. By examining the course-taking behavior of first-time community college students, such as the number of credits they attempted and how long they stayed in college, Bahr was able to differentiate and describe six unique patterns of use of community colleges and identify the characteristics of students who were more or less likely to exhibit each pattern. Bahr's studies, which followed students for up to eight years in the California Community College system, revealed that *nearly one-third of students took an average of just two courses over about two years and overwhelmingly succeeded in these courses, but rarely attained a degree, certificate, or transferred to a four-year college*. In a report on this study released to the field (Bahr & Booth, 2012), these students were identified as skills-builders—a term that quickly entered statewide discussions about how to measure the success of community college students. Bahr's research, and the subsequent discussions and investigations it has sparked, have begun to move skills-builder students from the realm of anecdote to empirically-documented fact, becoming a segment of the study population that can be identified, studied, and better understood.

Further examination of skills-builders by Bahr has shown that many of these students focus their course-taking in discrete, job-related fields, such as engineering and indus-



HOW TO USE THIS GUIDE

This inquiry guide outlines the findings of Bahr's recent research on skills-builder course-taking and includes discussion questions that can help relate the research results to key concerns in community colleges. It is intended to support conversations on college campuses and in the policy arena regarding:

- How to better understand students' goals by examining their course-taking behavior.
- The types of measures that are needed to improve the assessment of community college outcomes and impacts, including measures of success for students who do not complete a degree or certificate, or transfer to a university.
- The potential implications and effects of current policy and institutional reform efforts.

trial technology, public and protective services, family and consumer sciences, and business and management. Within these career and technical education fields, skills-builder students typically take small clusters of courses in particular subfields. Bahr's findings indicate that many of these clusters of courses lead to significant increases in earnings, even when students do not complete a postsecondary credential. These findings on skills-builders students—many of whom appear to be looking to quickly improve their workforce skills without necessarily completing a certificate or degree—can help provoke discussions about ways to measure success beyond the traditional completion framework. These new findings about skills-builder students:

- Indicate that success metrics need to be expanded to capture successful non-completion outcomes in addition to successful completion of degrees, certificates, and transfers
- Point to specific metrics that may be important to consider when evaluating the performance of community colleges with respect to workforce development
- Underscore the value of using additional metrics and other information to improve career and technical education pathways.



## WHAT'S **COMPLETION** GOT TO DO WITH IT?

*Learning From The Course-Taking Patterns of Skills-Builder Students*



### *What Characterizes The Skills-Builder Students In This Research?*

- Enroll for no more than four semesters, not necessarily consecutively
- Take six or fewer credits per semester
- Achieve a unit success rate of at least 70%
- Do not complete an associate's degree, attain a Chancellor's Office-approved certificate, or transfer to a four-year institution

IMAGINE A COLLEGE CAMPUS. Although the buildings are connected by a web of sidewalks, inevitably one finds that campus lawns are marked by dirt pathways that students have worn into the grass. Rather than take the established route, many students opt for a more efficient way to get from the campus center to the biology lab. Skills-builder students appear to be following the same sort of direct routes in their community college coursework—with the goal of quickly achieving particular workforce skills, but not necessarily completing a degree or certificate. Examining course-taking behavior of non-completing students allows colleges to find these well-worn non-completion pathways and see where they lead.

Being able to identify skills-builder students and track their course-taking are important first steps for community colleges in understanding the needs and outcomes of these students. First, it allows colleges to identify which course clusters yield the strongest employment outcomes. This is important for creating and maintaining coherent pathways that are closely aligned with the job market and that are successful in helping students move from poverty to a family-sustaining wage. Second, it helps colleges understand whether programs need to be retooled. If, for example, most students leave college halfway through an established certificate program and are able to secure a good-paying job in that field, the requirements of the certificate program may need to be honed and restructured. Third, tracking the coursework of skills-builder students facilitates understanding of the relative value to employers of the credentials offered by colleges. For instance, if industry certification and state licensing data are included in the analysis, colleges may find that students are gaining the skills that employers desire through community college coursework, yet electing to secure a better-recognized industry certificate or state license rather than a community college credential.

Finally, measuring the successes of skills-builder students allows colleges to determine whether students who currently are identified as drop-outs are, in fact, attaining their individual academic goals.



# UNDERSTANDING BAHR'S RESEARCH



**The research described in this report focuses exclusively on students who were enrolled in college for the first time.** The discussion of findings on earnings focuses on first-time students between the age of 18 and 50 who were successful in their coursework, took six or fewer credits, achieving a unit success rate of at least 70%, but who did not complete an associate's degree or Chancellor's Office-approved certificate and did not transfer to a four-year institution.

## *Who Was Included in the Research?*

The data for Bahr's skills-builder analyses were drawn from a Chancellor's Office of California Community Colleges database and included 1,222,212 first-time students who began taking for-credit courses between fall 2002 and summer 2006 and who reported a valid social security number. First-time students included those who had not previously attended college and were not co-enrolled in high school when they entered the California Community College system. This set of constraints captured approximately two-thirds (64%) of new students who entered the California Community College system between fall 2002 and summer 2006 and who reported a valid social security number. Future studies will examine skills-builder patterns of course-taking among students who are new to the California Community College system but previously attended college (i.e., returning students).

## *How Were Skills-Builder Students Identified?*

Course-taking behavior and academic outcomes were observed for six years. Skills-builder students were defined as non-completing first-time students who enrolled in the California Community College system for no more than four semesters (whether or not enrollment was continuous), including fall, spring, and summer terms but excluding winter inter-sessions; who carried a mean course-credit load of six or fewer credits; and who achieved a unit success rate (the ratio of credits earned to credits attempted) of at least 70%. For the purposes of this study, a non-completing student is one who, within six years of entering the system, did not complete an associate's degree or a Chancellor's Office-approved certificate and did not transfer to a four-year institution. A group of 174,864 students met the skills-builder criteria, amounting to one in seven (14%) first-time students.

## *How were Skills-Builder Fields and Subfields Identified?*

Drawing on the California Community College Taxonomy of Programs (TOP), Bahr calculated the percentage of skills-

builder students who took for-credit courses in each of the 24 broad fields of study described in the TOP and the percentage of students who continued in successive semesters in the same field of study in which they began. To identify important course clusters, Bahr examined the percentage of courses and credits taken in each of the 220 TOP subfields by skills-builders who began in each of the primary fields of study in which skills-builders were found. Although this process of identifying course clusters sliced skills-builders into subgroups based on the fields in which they began taking coursework, Bahr also explored interdisciplinary course-taking in order to identify common patterns of coursework among skills-builders that drew on courses in more than one field of study.

## *How were Labor Market Outcomes Calculated?*

Because skills-builder students often reach their employment goals without completing a degree or certificate, Bahr's study aimed to capture a quantifiable metric of success for these students; accordingly, the study analyzed the earnings of students before, during, and after their college coursework. The focus of Bahr's analysis was the relationship between the number of credits completed in each of the 220 TOP subfields and inflation-adjusted earnings, from eight quarters prior to college entry through the fourth quarter of 2012. Bahr used a complex statistical model—fixed effects regression analysis—to analyze quarterly earnings data from the California unemployment insurance database. These earnings data were analyzed for students who met the following criteria: first-time, non-completing students who were successful in their coursework; had achieved a unit success rate of at least 70%; were between the ages of 18 and 50 when they entered the California Community College system; and had at least one quarterly earnings record prior to college entry and at least one earnings record during or after college attendance. A group of 204,309 students met this criteria, including both skills-builder students and other successful non-completing students who took a larger number of credits than the six-credit-per-semester threshold for skills-builders in this study.

# ATTRIBUTES OF SKILLS-BUILDER STUDENTS

## Discussion Questions

1

If a student enters community college with a goal of a credential, but leaves after taking only a few courses because they were able to improve their employability, should this count as a success? How can skills-builder students be encouraged to return to college for a more sustained program of study, or to complete a program of study that they began?

2

Three-fifths of skills-builders enrolled for only one semester. Can you identify individual courses or sets of courses that could be completed in one semester, which are likely to lead to improved employment outcomes?

**Skills-builder students** enrolling in college for the first time display the following characteristics:

### College Goal

On their college applications, skills-builders *disproportionately indicated that they were seeking to advance their career or enter a new career*. More than two-fifths (42%) indicated a job-related goal other than a credential, including preparing for a new career (12%), advancing in a current career (13%), maintaining a certificate or license (12%), or formulating career plans (4%). About one-fifth (22%) of skills-builder students reported an academic goal of an associate's degree, certificate, or transfer to a four-year institution, which is substantially less than the 54% of other first-time students who reported such a goal.

### Duration of Enrollment

Skills-builder students *participated in community colleges for a relatively brief time*—on average, they enrolled for 1.7 semesters and attempted five credits. Three-fifths (61%) of skills-builders stayed for just one semester. An additional one-fifth (20%) continued for two semesters, with the remainder continuing for one or two additional semesters.

### Success

Skills-builders are *among the most academically accomplished* students at community colleges. Overall, they achieved a course success rate of 93% and a unit success rate of 98%, well above the minimum 70% unit success threshold used to identify skills-builder students for this study. Among the three-quarters of skills-builder students for whom a valid GPA could be calculated, 93% earned a GPA of 2.0 or higher and 71% earned a GPA of 3.0 or higher. As a point of comparison, 61% of other first-time students earned a GPA of 2.0 or higher and only 28% earned a GPA of 3.0 or higher.

### Demographics

Compared with other first-time students, *skills-builders tend to be older, are more likely to be non-Hispanic Whites, and are less likely to be African American or Asian American*. Skills-builders' average age at college entry was 37 years, compared with an average age of 24 years among other first-time students. They were slightly more likely to be male than to be female (51% male), while the opposite is true of other first-time students. About half (47%) of skills-builders were White and one-third (33%) were Latino. Roughly one in fourteen (7%) was African American, and a similar fraction (7%) was Asian American.



# FIELDS OF STUDY OF SKILLS-BUILDER STUDENTS

IN ORDER to better understand how community colleges are being utilized by skills-builder students who are seeking to quickly improve their workforce skills, it is useful to understand which fields and subfields of study they gravitate toward. When examining the types of courses that skills-builder students were taking, several clear patterns appeared:

- **Academic Field:** *About three-fifths (58%) of skills-builder students enrolled initially in fields that are oriented primarily toward career and technical education (CTE), especially engineering and industrial technologies (19%), business and management (13%), public and protective services (8%), family and consumer sciences (7%), and information technology (5%). Other non-CTE fields in which skills-builder students often enrolled in their first semester include interdisciplinary studies (11%), education (10%), fine and applied arts (7%), and humanities (7%).*
- **Persistence within a Field:** *Skills-builder students who enrolled initially in a CTE field tended to focus narrowly on this field in successive semesters, if they continued in college beyond the first semester. For example, 90% of the skills-builder students who enrolled initially in engineering and industrial technologies and continued in college after their first semester enrolled in this same field of study in their second semester. In public and protective services, 79% of skills-builders continued in this same field. However, skills-builders in some fields tended to be more interdisciplinary in their course-taking. Among skills-builder students who enrolled initially in information technology and continued in college for a second semester, 45% took coursework in information technology and 17% took coursework in business and management in their second semester.*

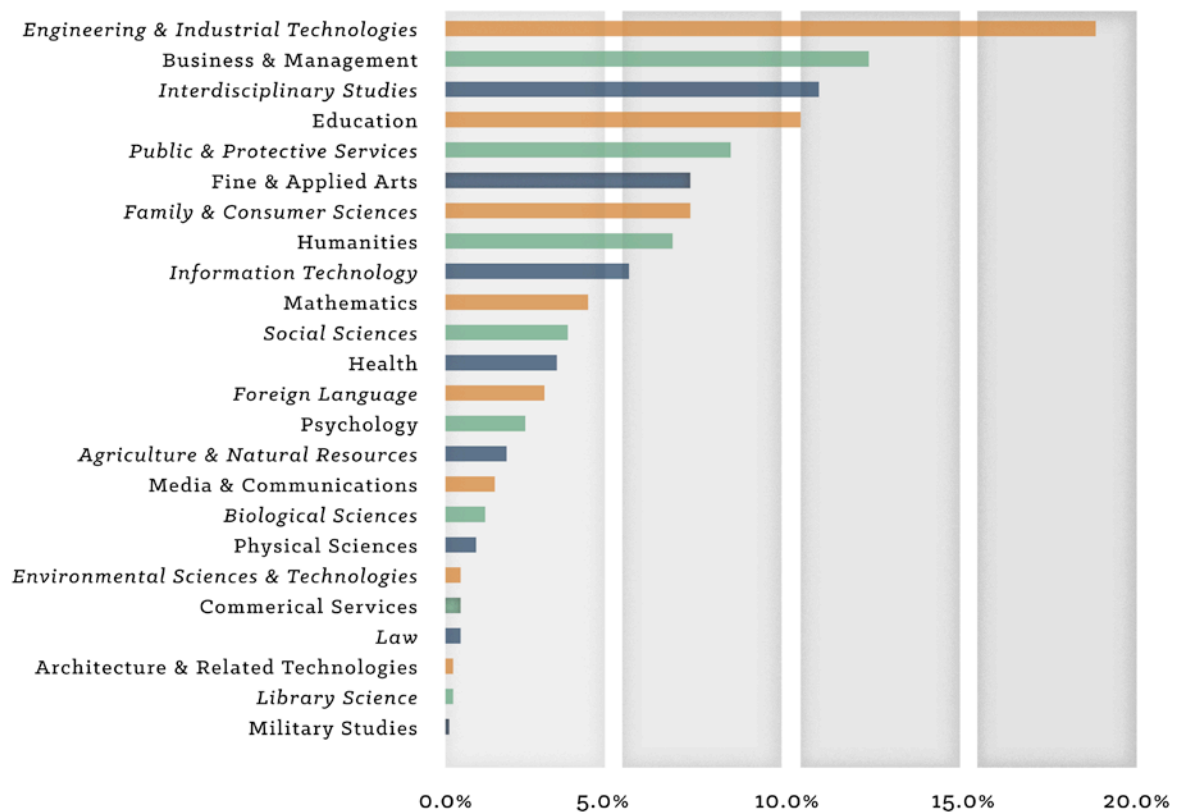
## *Dominant Subfields*

Within the broader CTE-oriented fields discussed above, certain subfields tended to draw the greatest share of participation by skills-builders. The percentages below show the proportion of credits that skills-builder students took across all fields and subfields:

- **Engineering and Industrial Technologies:** *Construction crafts technology accounted for 17% of all of the credits taken by skills-builder students who began in engineering and industrial technologies. Manufacturing and industrial technology accounted for 15% of credits taken by skills-builder students who began in engineering and industrial technologies, while 14% of credits were in automotive technology, 13% in chemical technology, 6% in electronics and electric technology, 5% in civil and construction management technology, 4% in water and wastewater technology, 4% in drafting technology, 4% in environmental control technology, and 3% in automotive collision repair.*
- **Business and Management:** *Real estate courses accounted for 30% of the credits taken by skills-builder students who began in business and management, while 14% of credits were in office technology and office computer applications, 13% in accounting, 8% in business management, and 6% in general*

# PERCENTAGE OF SKILLS-BUILDER STUDENTS WHO ENROLLED IN EACH OF 24 FIELDS OF STUDY IN THEIR FIRST SEMESTER

Source: Bahr's analysis of data from the California Community Colleges Chancellor's Office Management Information System (Fall 2002 through Summer 2004).  
Note that the percentages do not sum to 100% across fields because one in twelve skills-builders (8.3%) enrolled in more than one field of study in their first semester.



Percentage of Skills-Builders Who Enrolled in Coursework

business and commerce. A modest level of cross-field CTE course-taking was noted among skills-builders in this field, primarily focused on courses in information technology.

- **Information Technology:** Many of the credits taken by skills-builders who began in information technology were in *computer information systems* (22%) and *general information technology* (22%). Other subfields with substantial participation by skills-builders who began in information technology were computer infrastructure and support (10%) and computer software development (8%). Many students who began in information technology also enrolled in business and management courses, demonstrating a comparatively high level of cross-field course-taking.
- **Public and Protective Services:** *Administration of justice, which includes subjects such as law enforcement and corrections, accounted for more than half (55%) of the credits taken by skills-builder students who initially began in the public and protective services field. Fire technology (17%) and human services (10%) accounted for smaller shares of the credits taken by these students.*

- **Family and Consumer Sciences:** Nearly two-thirds (65%) of credits taken by skills-builders who began in this field were in *child development/early care & education*, while nutrition, foods, and culinary arts accounted for 7% of credits taken by these students.

## Discussion Questions

1

Has your college designed sequences of career technical education courses that can be completed in one to two semesters? Are they part of a larger pathway of stackable certificates? Do your courses complement courses offered at other nearby institutions?

2

As workplace needs evolve, are there clusters of courses that could be offered across disciplines to integrate technical and 21st century skills or to address emerging sectors like information and communication technology? How could students be alerted to these focused areas of study?



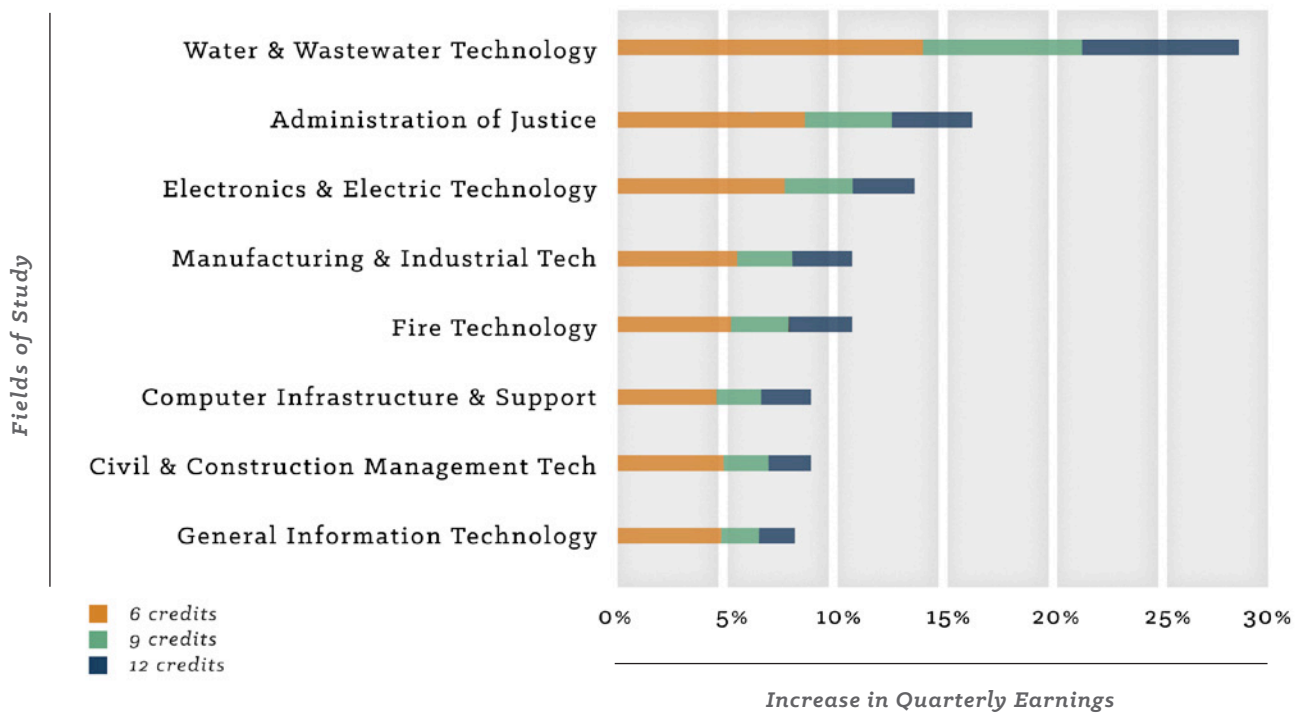
## LABOR MARKET OUTCOMES

*of skills-builder students and other non-completers*

BECAUSE traditional completion-based metrics of success do not necessarily reflect success in the workforce, labor market outcomes such as students' earnings are a useful metric of student success. When looking at labor market outcomes for skills-builder students, there were 24 CTE subfields in which skills-builders course-taking was evident, with 16 subfields yielding significant earnings gains. Estimated earnings gains for skills-builder students who completed six credits in a given subfield are outlined below:

- **Engineering and Industrial Technologies:** Across all fields and subfields, *the strongest return to completed credits was in chemical technology with an average 66% increase in earnings.* Students in water and wastewater technology experienced an average increase in earnings of 15%. Other subfields in which completed credits were associated with significant earnings gains include electronics and electric technology (8%), manufacturing and industrial technology (5%), civil and construction management technology (5%), environmental control technology (4%), drafting technology (3%), construction crafts technology (2%), and automotive technology (2%). However, automotive collision repair had essentially no earnings gain.
- **Business and Management:** *Credits in office technology and office computer applications (4%) and accounting (3%) produced gains in earnings,* while credits in business management and general business and commerce were not associated with earnings gains. *Real estate was the only subfield that showed an earnings loss associated with completed credits.*





Source: Bahr's analysis of data from the California unemployment insurance database (2002 through 2012).

- **Information Technology:** Credits in *general information technology and computer infrastructure and support* were each associated with earnings gains of 5%, while credits in computer information systems and computer software development did not improve earnings significantly.
- **Public and Protective Services:** Credits in *administration of justice and fire technology* provided returns of 9% and 5%, respectively, while human services did not return an earnings gain.
- **Family and Consumer Sciences:** *Child development/early care and education* yielded a 3% earnings gain, while nutrition, foods, and culinary arts yielded essentially no earnings gain.

In addition to the earnings gains that skills-builder students attained, students who completed more than six credits but did not complete a community college credential or transfer to a four-year college also achieved gains, which in most cases were larger than those who completed fewer credits.

### Discussion Questions

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Earnings are only one component of labor market returns to a college education.

What other gains could skills-builder course clusters support, such as upgrading skills to retain employment or shifting to a more desirable field? How could these additional employment outcomes be measured?

2

A number of subfields showed significant earnings gains for students who completed only six credits. Should certificate programs be altered so that they end at the point where most students are able to attain a living-wage job, an industry certification, and/or a professional license?



## IMPLICATIONS FOR DEFINING, MEASURING, AND IMPROVING SUCCESS

BAHR'S RESEARCH points to a number of issues related to defining, measuring, and improving the success of community college students. As indicated by the positive outcomes experienced by many skills-builder students, limiting the definition of student success to completion alone misses a substantial number of students who are improving their standard of living by succeeding in community college courses, even though they do not complete a credential or transfer to a four-year institution.

With employers reducing onsite training, community colleges may offer the most cost-effective option for the state to maintain a skilled workforce. The return on investment to the state of both increased earnings and improved job retention is high. Increased earnings result in a stronger tax base, while improved job retention results in a smaller outlay of funds for social assistance. In other words, the state has a strong vested interest in the labor market outcomes of non-completing students, despite the fact that commonly used measures of success largely ignore these students. Furthermore, given that community colleges provide one of the most cost-effective means for low-income individuals to improve their earning potential, opportunities for earnings gains that can be secured quickly may be especially valuable.

### *Need for Additional Measurements of Student Success*

As indicated by Bahr's research, expanding the measurements of success to include non-completion outcomes like earnings can help give a more accurate and well-rounded picture of how community college courses are helping students achieve their goals. For example, students may calculate their return on investment and decide that targeted coursework is a better fit for their goals than a higher education credential, particularly given the double loss of having to pay for college while forgoing income as a result of having less time to work while attending college. This sort of targeted coursework can lead to significant earnings gains:

Skills-builder students who participated in water and wastewater technology coursework saw an average 7% quarterly earnings gain after completing just three credits and a jump of 29% after 12 credits. While this course cluster had stronger earnings returns to credits than some other subfields, there were numerous disciplines in which minimal course-taking translated into meaningful increases in earnings. Yet, under a framework that measures success solely through completion, these students would be deemed failures.

However, while earnings data quantify one important facet of success, they may not be sufficient to capture the full breadth of skills-builder students' employment outcomes. For example, the unemployment insurance data used to calculate students' earnings for this analysis are limited by the fact that they do not include earnings from self-employment, federal government employment, military service, informal jobs paid in cash, employment in other states, and several other sources. In fields such as real estate and construction crafts, where people tend to work for themselves or in cash-based businesses, returns to credits likely would appear to be low, or even negative, as was observed in Bahr's research. Furthermore, the unemployment insurance data used in this analysis did not include information about how many jobs an individual held at any point in time or whether employment was part-time or full-time. If a student was able to leverage the competencies learned in a community college course to move from a patchwork of part-time jobs to a secure full-time job, but without an overall increase in earnings, this successful outcome would not be evident in these data.

Additional data sources beyond unemployment insurance data would also be needed to measure the impact of course-taking on job retention. Students may take specific community college courses to be certified or recertified in fundamental skills so they can continue to practice in their field of employment, without necessarily securing higher earnings. For example, certified nursing assistants in California must complete 48 hours of continuing education credits every two years. Similarly, smog technicians need to be recertified periodically, which may contribute to the comparatively low earnings returns to course credits found in this analysis for automotive technology. Other career-related coursework that showed negligible earnings gains, such as business management and computer information systems, may reflect ongoing professional development that is supportive of industry needs.

Accurately quantifying skills-builder outcomes will require access to new data sets. Integrating industry and state certification and licensing data would help to clarify whether students are leveraging community college courses to secure credentials offered outside higher education institutions. Student surveys could be used to collect additional information about earnings gains and job retention, as well as other outcomes such as whether students started their own businesses. In addition, state community college system offices could secure access to alternative sources of earnings data, such as tax records, which would help to fill in the blind spots of unemployment insurance earnings data, such as self-employment or federal employment.

### *Improving Workforce-Related Pathways and Programs*

Given that significant numbers of students are pursuing short-term course-taking, often in workforce-related topics that produce positive gains in earnings, colleges should work to improve these pathways. For example, in early childhood education, the state of California prescribes a clear pathway for career advancement: complete six credits in child development/early care and education to become licensed as an assistant teacher, 12 credits to become an associate teacher, and 32 credits to be certified as a site supervisor. This structure is mirrored in the earnings data for non-completing students who complete credits in this subfield, among whom we see earnings gains of 3%, 7%, and 18% at these respective credit thresholds. Further analysis shows that skills-builders in this pathway were overwhelming female (93%) and 24% more likely to be Latino than any given individual in the larger population of first-time students. For a woman with young children who must juggle childcare and a job, a skills-builder pathway in child development/early care and education may be her first rung on a ladder out of poverty.

In a recent call for proposals to improve employment outcomes for workers who had lost their jobs, the Department of Labor (2013) prioritized programs that help "adults acquire the skills, degrees, and credentials needed for high-wage, high-skill employment while ensuring needs of employers for skilled workers are met" and that "expand and improve ability [of higher education institutions] to deliver education and career training programs that can be completed in two years or less" (p. 1). The course-taking patterns identified in this research represent a foundation from which to better address the needs of displaced and under-employed workers, particularly if the courses become part of coherent, stackable pathways. For example, identifying



common exit points for non-completers can help colleges pinpoint where programs might need to be modularized or retooled to better meet industry needs and the needs of skills-builder students looking to quickly attain discrete workforce skills. Attention to scheduling and guidance about coherent skills-builder pathways might also help more students obtain the skills that they need at a single institution, rather than necessitating attendance at multiple colleges.

With budgets tight, colleges have to make difficult choices about which courses to offer and whether to invest in specific programs. If colleges focus on completion as the sole metric of success, pathways that lead to other successes—such as external certifications, job retention, and earnings gains—may be de-prioritized because they tend to produce lower completion rates. Career and technical education programs are vital to rebuilding the economy and helping people secure a family-sustaining wage—goals that are cited frequently by politicians but rarely recorded in community college success metrics. Examining non-completion pathways and better measuring employment outcomes will help colleges develop stronger programs. By following the pathways that students have forged to reach their goals, community colleges can find and support new routes to success.

### Discussion Questions

1

At your college, have career and technical education offerings been impacted by the funding crisis or the focus on completion outcomes? What types of information would help inform decision-making about the value of these offerings?

2

Could your college collect additional non-completion success metrics locally, like industry certifications and job retention data? How could this be done systematically across your institution or region?

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## ADDITIONAL RESOURCES

Visit [www.wested.org/project/quantifying-non-completion-pathways-to-success](http://www.wested.org/project/quantifying-non-completion-pathways-to-success) for:

- A downloadable version of this inquiry guide
- An executive summary of the earnings gains research
- Published scholarly articles by Bahr on this topic

Access earlier work on course-taking patterns in California community colleges on the [LearningWorks](#) and [RP Group](#) websites. These resources include the following:

- The “What’s Completion Got to Do with It?” inquiry guide applies Bahr’s research to the current conversation on improving completion outcomes and includes a series of questions that could be used to discuss the research.
- A recorded [webinar](#) summarizes Bahr’s research on course-taking patterns and offers practitioner perspectives on the value of short-term course-taking.
- The “Segmentation Model for Assessing Course-Taking Patterns” document provides a simplified rule set to sort students into the classifications identified by Bahr. This document also includes sample discussion questions on how to use these results to build a deeper understanding of student course-taking behavior and its relationship to student success.



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LearningWorks was founded by the Career Ladders Project for California Community Colleges, the Research and Planning Group for California Community Colleges, and the California Community Colleges Success Network to facilitate, disseminate and fund practitioner-informed recommendations for changes at the community college system and classroom levels, infusing these strategies with statewide and national insights. LearningWorks seeks to strengthen the relationships that offer the greatest potential for accelerating action, including those between policy makers and practitioners, among overlapping initiatives, and across the 112 colleges. LearningWorks is supported by the William and Flora Hewlett Foundation and the Walter S. Johnson Foundation.

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