WHAT'S COMPLETION GOT TO DO WITH IT?

Using Course-Taking Behavior to Understand Community College Success

theRPgroup LearningWorks

preface

This LearningWorks inquiry guide was prepared in association with the RP Group, a nonprofit, nonpartisan organization that strengthens the abilities of California community colleges to gather, analyze and act on information in order to strengthen student success.

The principal authors of this guide were Peter Riley Bahr, Assistant Professor of Education at the University of Michigan, and Kathy Booth, Executive Director of the RP Group. It is based on a study that Bahr conducted for the California Community Colleges Chancellor's Office.

You can access several articles that provide a more in-depth description Bahr's findings and research methodology at: www.rpgroup.org/projects/completion

LearningWorks was founded by the Career Ladders Project for California Community Colleges, the Research and Planning Group for California Community Colleges (RP Group), and the California Community Colleges Success Network (3CSN) to facilitate, disseminate and fund practitioner-informed recommendations for changes at the system and classroom levels, infusing these strategies with statewide and national insights.

This inquiry guide was written by Peter Riley Bahr and Kathy Booth with underwriting from LearningWorks. For more information, visit www.rpgroup.org/projects/completion

Introduction

California's community college system encompasses a broad-ranging vision for higher education. Students are able to access a diversity of programs including an affordable alternative for the first years of a bachelor's degree, job training, basic skills, life-long learning and social services resources for groups such as returning veterans and welfare recipients. This expansive scope reflects the desire to grow both the economy and human potential. Yet, as resources dwindle, the conversation about what constitutes success has focused on those outcomes that can be counted easily. Statewide efforts, such as the Task Force on Student Success and national initiatives sponsored by the federal government and large foundations, have encouraged the use of completion—defined as the attainment of degrees and certificates or transfer to a four-year institution—as the yardstick for effectiveness.

But does completion capture the full impact of community colleges? And if community colleges desire to demonstrate their effect on students more broadly, what should they be measuring? These questions become particularly important in the current economic climate, as colleges are engaged in the painful process of cutting programs, services and even entire majors. In order to prioritize offerings, colleges must understand how students are using their institutions and how proposed changes will affect various student populations.

A recent study of course-taking behavior among California community college students, conducted by Peter Riley Bahr of the University of Michigan for the California Community Colleges Chancellor's Office, reveals some important considerations for the definition of community college success. By analyzing student behavior, such as the number of units attempted and how long they stayed in college, Bahr was able to document several "clusters" or patterns of student use of community colleges and identify characteristics of students who were more likely to exhibit each pattern.

Two-thirds of community college students appeared to be pursuing a degree, certificate or transfer, but there were several sub-groups within this pathway that represented a continuum of course-taking behavior and degrees of success. For example, Bahr found the clusters that were most likely to achieve a completion outcome included students who enrolled full time and remained in community college for 4-6 years. The study also revealed that African American and Latino students were disproportionately represented in the cluster that had the lowest levels of success, both in their coursework and the attainment of a degree, certificate or transfer.

Bahr also found that nearly a third of first-time students engaged in skills-building behavior—enrolling in a small number of courses over a few years. Although they passed these courses 94% of the time, this group did not go on to achieve a degree, certificate or transfer. This is a significant because colleges do not have a consistent way to capture the positive impacts of short-term course-taking, and because this large group is regarded as failing when using the completion yardstick.

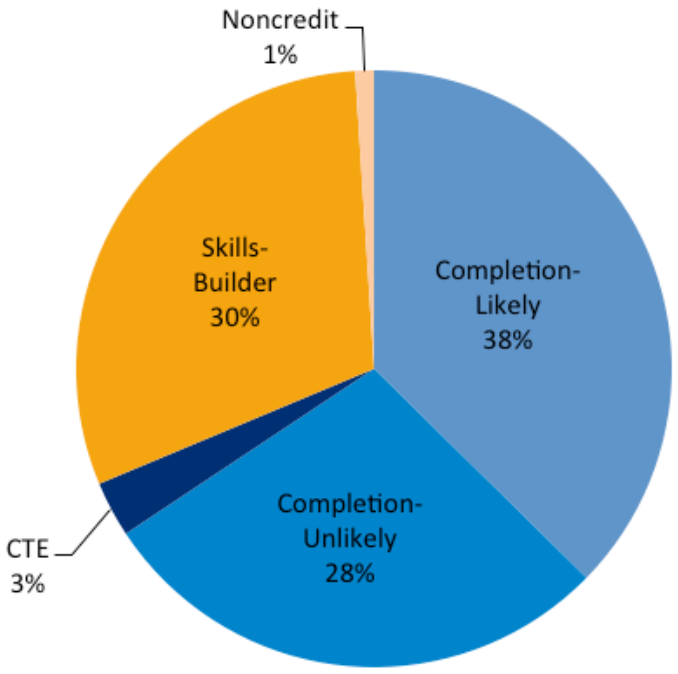
How to Use This Guide

This inquiry guide applies the findings of Bahr's study within the context of attaining degrees, certificates and transfer, and includes discussion questions that can help relate the results to key concerns in community colleges. It is intended to support conversations on college campuses and in the policy arena on:

1) how to better understand students' goals by examining their course-taking behavior
2) the types of measures that would help better assess community college impact
3) how colleges could allocate resources to yield greater student success
4) the potential impacts of current reform efforts

A related guide, "Segmentation Model for Assessing Course-Taking Patterns: Research Methodology and Discussion Guide," provides a simplified methodology to replicate Bahr's study at individual college campuses, as well as 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.

Shifting the Lens From Goals to Behaviors



First-Time Student Types, Based on Head Count

One problem in understanding the role of community colleges is that the data gathered on students' goals when they begin college are connected only loosely to their behavior in college. Not only do students change their minds, they are actively encouraged to modify and expand their goals as they explore their options. To help better understand the outcomes that students pursued once they were enrolled in California community colleges, Bahr used a technique known as cluster analysis (see page 4 for more information on this research technique). His sample included 165,921 first-time students[1] who enrolled in at least one credit or noncredit community college course in fall 2001. Based on the kinds of courses these students elected to take over the next eight years—as well as factors such as how long they attended, how many courses they took at a time and course success rates—Bahr identified a number of distinct student groups.

In short, Bahr identified common pathways that students take through community colleges and then determined who was more likely to take a particular pathway and what outcomes they were likely to achieve. These groups are described below, within the framework of completing degrees, certificates or transfer.

[1] First-time students accounted for about 70% of new students who entered the system in the fall 2001, four-fifths of course units attempted by new students in the 2001-2002 academic year, and more than four-fifths of noncredit courses taken by new students in that same year.

Understanding Bahr's Study

Cluster Analysis

Cluster analysis is a research technique that identifies patterns in sets of conceptually useful variables, where members within each cluster are more like each other than they are like the members of other clusters. Clusters are identified retrospectively, exploring past behavior to identify patterns rather than using reported intentions to predict future behavior. For this study, the clusters were created by examining course-taking variables, such as the number of units attempted, types of courses taken and course success rates. Once the clusters were established, the relationships between membership in a cluster and other variables (e.g., declared college goal, demographics, attainment of a degree, certificate or transfer) were examined.

The Student Clusters

Bahr's study identified six clusters. For the purpose of this write-up, the clusters have been renamed to help bring forward the completion-related aspects of each group. We also have collapsed two of the clusters into one group, so that the categories in this guide match the categories in the accompanying simplified research methodology, which enables colleges to replicate the study with their own students. The two student groups are similar enough that they appear as one group in the less complex self-study methodology. However, the original study offers some interesting insights into factors that may influence student attainment of degrees, certificates or transfer, and, therefore, both are described in this document.

The original and modified cluster names are:

1) The Completion-Likely group includes the Most Likely to Complete cluster (which Bahr calls the Transfer cluster) and Somewhat Likely to Complete cluster (which Bahr calls the Exploratory cluster)
2) Bahr's Terminal Vocational cluster is referred to as the Career Technical Education group in this document
3) Bahr's Experimental cluster is referred to as the Completion-Unlikely group
4) Bahr's Drop-In cluster is referred to as the Skills-Builder group
5) The final group, Noncredit, is assigned the same name in both the original study and this document

First-Time Students

Bahr's study is based on first-time students, meaning students who had not previously attended college and were not co-enrolled in high school or a four-year institution. This constraint helped prevent duplication of students and captured close to three-quarters of students who entered community colleges in the fall of 2001. The numbers throughout this guide are for first-time students only, so areas of study that have a high proportion of students who have previously attended college and are returning after a break, such as in career technical education or noncredit, may appear to be underrepresented.

Find Out More

You can access several articles that provide a more in-depth description of Bahr's findings and research methodology at: www.rpgroup.org/projects/completion

Completion-Directed Groups

Several of the clusters in Bahr's study included students whose behavior indicated that they had a completion goal, meaning that they were seeking a degree, certificate, and/or transfer to a four-year institution. However, the likelihood that students achieved this outcome, as well as the type of credential they were pursuing, varied.

Completion-Likely Students

Two of the clusters formed a continuum of students who were degree or transfer directed in subjects other than career technical education (CTE).

Most Likely to Complete

Summary: The most-likely-to-complete group, which made up 14% of first-time students, tended to enroll full-time or near full-time and to **attend college continuously for an average of six years**. They attempted a high number of units in transferrable courses with a moderate rate of course success. More than two-thirds completed a credential or transferred to a four-year institution.

College Goal: **This cluster was the most transfer-directed of any of the groups.** Of those who indicated a goal, 73% reported they sought to transfer and 6% were pursuing a non-CTE associate's degree.

Units Attempted: This cluster attempted significantly more credits than any other group, **averaging 123 units.** They enrolled full-time or near-full-time, taking an average of 11 units per semester for six years.

Interestingly, among students in this cluster who transferred, the average number of units attempted and average number of terms enrolled were slightly lower than the averages for the cluster as a whole (an average of 96 units and nine semesters for those who transferred without a credential and about 102 units and ten semesters years for those who transferred with a credential). **However, students with other completion outcomes remained in college for a considerable time and attempted a large number of units.** Those who attained a certificate or CTE associate's degree attempted an average of 117 units and enrolled for an average of 12 or 13 terms. Those who attained a general education associate's degree attempted an average of 111 units and enrolled an average of 12 terms.

Coursework: While students in the most-likely-to-complete cluster took courses across the curriculum, their highest concentrations were in humanities, math and social/behavioral sciences. On average, they took about 18 units of basic skills math and English courses. For 81% of these students, their first math course was a basic skills class. Fifty-seven percent of these basic skills math students went on to pass a college-level math course.

Course Success: Students in the most-likely-to-complete cluster passed 73% of their courses, on average, by receiving at least a C grade (or a "pass" grade in a pass/no-pass course).

Completion Outcomes: The most-likely-to-complete group was more likely to complete a credential or transfer than any other cluster, with **68% transferring to a four-year institution and/or earning a credential.** The 68% was comprised of 55% who transferred to a four-year institution, evenly divided between those who transferred with a credential and those who did

Completion-Directed Groups

Completion-Likely

Enroll full-time

Succeed in courses more than 70% of the time

31% of students who stay about 4 years attain a non-CTE degree, certificate or transfer

68% of students who stay about 6 years attain a non-CTE degree, certificate or transfer

Career Technical Education

Stay about 5 years

Enroll nearly full-time

Succeed in courses 80% of the time

35% attain a degree, certificate or transfer

Completion-Unlikely

Stay about 2 years

Enroll part-time and attend intermittently

Succeed in courses 26% of the time

10% attain a degree, certificate or transfer

not, 12% who received an associate's degree without transferring and 1% who received a certificate without transferring.

Demographics: Students in the most-likely-to-complete cluster were largely traditional college-aged; 83% were between 17-19 years old. Asian American and Filipino students made up a disproportionately large share of this student group—nearly one-third of all first-time Asian American students and one-quarter of first-time Filipino students were found in this cluster. Conversely, **African American and Native American students were under-represented in the transfer cluster,** given their overall enrollments among first-time students in community colleges.

Somewhat Likely to Complete

Summary: The somewhat-likely-to-complete group, which made up 23% of first-time students, was likely to attend college full-time or nearly full-time for an average of four years, primarily attempted courses that were transferrable and had moderate course success rates. About one-third completed a credential or transferred to a four-year institution.

College Goal: Among students who indicated a college goal in this cluster, 67% reported that their goal was transfer, with an additional 6% seeking a non-CTE associate's degree.

Units Attempted: The somewhat-likely-to-complete cluster looked very similar to the most-likely-to-complete cluster—they attended full-time and carried an average load of 11 units. However, **they did not stay in community college as long,** enrolling an average of 4 years versus 6 years.

Coursework: In comparing course-taking patterns with the most-likely-to-complete cluster, this group took a slightly greater percentage of basic skills courses in math and English (relative to college-level courses in these subjects) and enrolled in content across the curriculum. However, there were a few key differences:

1) They were less likely to enroll in math of any kind (87% versus 99%)
2) They were less likely to successfully complete a college-level math course if they began in basic skills math (27% versus 57%)
3) They took disproportionately fewer courses in physical and life sciences

Course Success: The somewhat-likely-to-complete cluster had nearly the same course success rate as the most-likely-to-complete cluster: 71%.

Completion Outcomes: **Thirty-one percent completed—half as many as the most-likely-to-complete cluster.** Of these, most transfered, with nearly all of these students transferring without an associate's degree.

Demographics: The somewhat-likely-to-complete group differed from the most-likely-to-complete group in that:

1) While still largely within the college-age bracket, their average age was slightly older (21 versus 19)
2) They had a slightly larger percentage of African American (7% versus 4%) students and fewer Asian American students (9% versus 15%)

Career Technical Education (CTE) Students

Summary: The CTE cluster, which made up 3% of first-time students, was likely to enroll full-time for about five years and attempt more than 80 credits on average, with more than half being non-transferrable vocational courses. CTE students passed about 80% of their courses, but just under a third completed a credential.

College Goal: Students in the CTE cluster **sought several distinct completion outcomes.** Among students who indicated a college goal, 28% reported that they were seeking job-related training, with an additional 33% pursuing transfer and 18% working toward a certificate or CTE associate's degree.

Units Attempted: On average, CTE cluster students enrolled full-time or nearly full-time (10 units per semester) for five years and attempted 82 units.

Coursework: The CTE group enrolled disproportionately in courses in commercial services (such as custodial services or food service technologies), engineering and industrial technologies, health fields and public and protective services. In fact, although they accounted for just 6% of all units attempted by first-time students, they attempted 77% of all course units in commercial services and 30% of all course units in engineering and industrial technologies. However, CTE cluster students also took courses in every other area of the curriculum. Forty-four percent enrolled in basic skills math, but only 12% of these students went on to complete a transfer-level math course.

Course Success: Overall, students in the CTE cluster **passed their courses 80% of the time.**

Completion Outcomes: This group had **low completion rates, totaling 35%.** Two-thirds of these completions were certifi-

cates. One important caveat is that the data set used for this study only recorded completion of certificates that are over 12-18 units, so **lower-unit certificates are not reflected in this rate.**

Demographics: Students in the CTE cluster were more likely to be older, with an average age of 25. Asian American students were less likely to be in this group, compared to their proportion in the first-time student population generally. Native Americans were overrepresented in this cluster.

Completion-Unlikely Students

Summary: This cluster comprised the **largest portion of the completion-directed group,** with 28% of first-time students. They attended part-time, sometimes intermittently, for a few years and either withdrew from or failed approximately three-quarters of their courses. Very few completed a credential or transferred.

College Goal: **Colleges goals were more varied among this cluster.** Among students who indicated a college goal, 41% of this cluster indicated that their goal was transfer, with an additional 7% seeking a non-CTE associate's degree. In addition, 30% of these students reported pursuing a CTE associate's degree, certificate, or non-credential, job-related training.

Units Attempted: Students in the completion-unlikely cluster enrolled half-time and took an average of two courses a semester for two years, but had gaps in their attendance—they only enrolled in one semester per year on average. **They attempted an average of 16 units** before they dropped out.

Coursework: Course topics were spread across the curriculum, although the completion-unlikely cluster attempted a disproportionally greater number of units in transferable CTE courses and generally did not take noncredit courses. These students took an average of 1.5 units of both basic skills English and math, but **less than 1% passed a college-level math course.**

Course Success: The completion-unlikely group had the **lowest course success rates, passing only 26% of their classes.**

Completion Outcomes: **Only 10% achieved a completion outcome**, most by transferring without an associate's degree.

Demographics: Students in the completion-unlikely cluster were likely to be somewhat older than students in the completion-likely groups, with an average age of 24, indicating that they had taken time off before beginning college. African American, Pacific Islander and Native American students were overrepresented relative to their overall enrollments among first-time students—in fact, **40% of all African American students and 30% of all Hispanic students in the study fell into this cluster.** This group was more likely to be male than the other two completion-directed groups (52% versus 46% for somewhat completion-likely group and 43% for the most completion-likely group).

Discussion Questions

1) What issues do students face when they take 4-6 years to prepare for transfer, a certificate or a degree, even when they are enrolled full-time? What are the consequences for colleges, especially given reduced budgets and statewide enrollment priorities that emphasize student progress toward a measurable outcome?

2) Proposed credit caps exceed the average number of units attempted by the most completion-likely cluster. How should colleges ensure this change does not hamper students' abilities to achieve their goals?

3) Given that factors such as enrolling in math, physical and life sciences correlate with stronger attainment of degrees, certificates and transfer, are there actions that colleges should take to encourage this type of course-taking? What else might account for the difference in outcomes for students who take these courses?

4) How could colleges identify completion-unlikely students before they leave and help them better succeed in their courses?

Non-Completion Students

Based on their behavior, two other student groups did not appear to be seeking a completion outcome.

Skills-Builder Students

Summary: The skills-builder group, which includes **almost a third of all first-time students,** took one or two courses a year over a couple of years with very high course success rates, but very low attainment of a degree, certificate or transfer.

College Goal: **Nearly three-quarters of this group were not seeking a degree, certificate or transfer.** Among students who indicated a college goal, 34% reported that their goal was job-related, non-credential training, with an additional 23% seeking personal development and 14% pursuing basic skills remediation. The remaining quarter of the skills-builder group indicated a goal of an associate's degree, certificate or transfer, which is a smaller percentage than any other cluster save the non-credit cluster (discussed in the next section).

Units Attempted: On average, students in the skills-builder cluster enrolled in two semesters of coursework over two years and attempted seven units. In other words, this cluster typically took one course a year for two years and then left the system.

Coursework: These students **took courses from across the curriculum:** 38% were in transferrable academic courses, 19% were in non-transferrable academic courses, 23% were in transferrable vocational courses and 7% were in non-transferrable vocational courses. Students in the skills-builder cluster enrolled in a disproportionately high number of units in engineering and industrial technologies and a disproportionately low number of units in physical sciences. In fact, although these students accounted for only 6% of all units attempted by first-time students, **they accounted for 18% of all attempted units in engineering and industrial technologies.**

Course Success: Students in the skills-builder cluster had the **highest course success rates of all student types—94%.**

Completion Outcomes: **Completion rates were among the lowest of any cluster, at just 9%.** Nearly all completions were transfers without an associate's degree.

Demographics: Students in this cluster were older, with an average age of 35. They were less likely to be Pacific Islander or Filipino, proportional to the overall representation of these ethnicities among first-time students. Students in the skills-builder cluster were also substantially more likely to be missing demographic data than most other student types.

Non-Completion Groups

Skills-Builder Students

Stay about 2 years

Take roughly one course per year

Succeed in courses 94% of the time

9% attain a degree, certificate, or transfer

Noncredit Students

Stay about 5 years

Take roughly one course per semester

5% attain a degree, certificate, or transfer

Noncredit Students

Summary: Noncredit students, which made up 1% of first-time students, took roughly two noncredit courses and one for-credit course per semester for a number of years, but almost none attained a credential or transfer.

College Goal: Among students who indicated a college goal, 21% reported that their goal was remediation, with an additional 40% seeking personal development courses and 15% pursuing job-related training.

Units Attempted: Students in this cluster stayed in the system for a long period of time, taking an average of two noncredit courses and one for-credit course per semester, typically for about five years.

Coursework: Noncredit students enrolled in about two noncredit courses per semester, which include short-term CTE programs in high-demand fields such as computing and the building trades, health and safety education and educational programs for older adults, among other subjects. Noncredit students also enrolled in a small number of for-credit courses (typically about one to two courses per year), primarily in interdisciplinary and general studies, humanities, math, social sciences, and business.

Course Success: In Bahr's study, all noncredit coursework was treated as having a passing grade, so course success rates for this group were difficult to compare with other student groups.

Completion Outcomes: Noncredit students had the **lowest completion rate of all student clusters: 5%,** most of which were transfers without an associate's degree.

Demographics: Noncredit students were the oldest group of first-time students, with an average age of 44. This group also had a disproportionate number of students who were more than 50 years old. It was the only group that showed a significant gender variation; noncredit students were more likely to be women. Both white and African American students were underrepresented in the noncredit cluster, given their overall representation among first-time students in community colleges, but this group was more likely to include students who were Asian American and students who were not US citizens. This group was more likely to be missing demographic data than most other student types.

Discussion Questions

1) How could colleges measure and document the success of skills-builder or noncredit students?

2) If students seeking only a few courses are exempted from creating an educational plan, and educational plans are used to develop course schedules, how can colleges determine how many courses to offer in job training-related areas?

Implications for defining and measuring success

Three important issues arise from Bahr's cluster analysis. First, by focusing on completion measures that are defined as attaining a degree, certificate or transfer, California community colleges do not fully document their role in facilitating career advancement. Career technical education students, despite many years of full-time attendance and high course success rates, achieved a credential only a third of the time. Many skills-builder students—who made up the largest cluster—and noncredit students used community colleges to improve job-related skills, but almost all left before they achieved a measurable completion. While these students appear in conversations about student success, their achievements are usually given as anecdotes. Few colleges collect hard evidence about the impact of limited coursework, such as whether these students are attaining higher wages or getting better jobs as a result of their participation in the California community college system. Furthermore, because lower-unit certificates are not documented in statewide accountability reporting, even these more measurable successes may go unnoticed. In addition to obscuring community colleges' economic development role, this gap reveals an important problem associated with focusing on the percentage of students who attain a degree, higher-unit certificate or transfer. Not only are other job training successes not being captured, they are being treated as failures in completion rates.

Bahr's analysis also lays bare the inability of California community college students to meet degree, certificate and transfer goals in the two- or three-year period that community college is expected to take. When using completion as a benchmark, students who are more likely to be successful enroll for an average of four to six years. This is particularly troubling given proposed enrollment caps and new limits on the number of terms in which one can receive financial aid for an undergraduate education.

Finally, Bahr's study provides a lens for understanding the lack of equitable completion outcomes in community colleges. Latino and African American students who report seeking a degree, certificate or transfer are overrepresented in the completion-unlikely group. This means that they are more likely to fail or drop out of their courses (at an average of three out of every four classes) and to leave college within two years. Traditionally, California community colleges have relied on programs such as Extended Opportunity Programs and Services (EOPS), Puente, Mesa and Umoja to support vulnerable students of color. However, these programs have been cut due to the ongoing budget crisis and, even before the cuts, they did not have sufficient funding to provide services to all students. As noted in the Student Success Task Force recommendations, it is vital that community colleges strengthen support services and interventions in the first year. Concerted attention is needed on how to make these resources more broadly available and on how to target them for students who are most in need of support.

Discussion Questions

1) Is grouping students in this way helpful? How does your institution currently classify students? What do you know about the characteristics of these groups?

2) What do these clusters imply about community college structures? What institutional factors might influence student behaviors, such as the number of units attempted, low rates of associate's degree attainment or high drop-out rates among some clusters?

Making the Connection

student course-taking patterns at your institution

Reviewing trends across the 112 California community colleges can help start a useful dialog about the nature of success and possible areas to target for improvement, particularly as the system adopts new enrollment priorities. However, the percentages shown in this inquiry guide are statewide averages. In further studies, Bahr has shown that the distribution of student clusters varies substantially by college. For example, some colleges have a disproportionate number of skills-builder and noncredit students, while others have a disproportionate number of students in the completion-likely clusters.

Cluster analysis of student behavior takes on greater meaning when colleges look at their own student data and evaluate how they can best assess and support student success and equitable outcomes. For example, a cluster analysis could help distinguish between students whose course-taking may appear similar on the surface (such as enrolling part-time and taking only a few courses), but whose goals may be different (such as students in the completion-unlikely and the skills-builder groups). Or it can be used to trigger further study, such as examining the gap between high course success and low completion attainment for clusters such as CTE and skills-builders.

Please see the related document, "Segmentation Model for Assessing Course-Taking Patterns: Research Methodology and Discussion Guide," for information on how you can use a simple analysis to gain a better sense of your students' course-taking patterns. This document includes a discussion guide that can help lead conversations about the results of your self-analysis.

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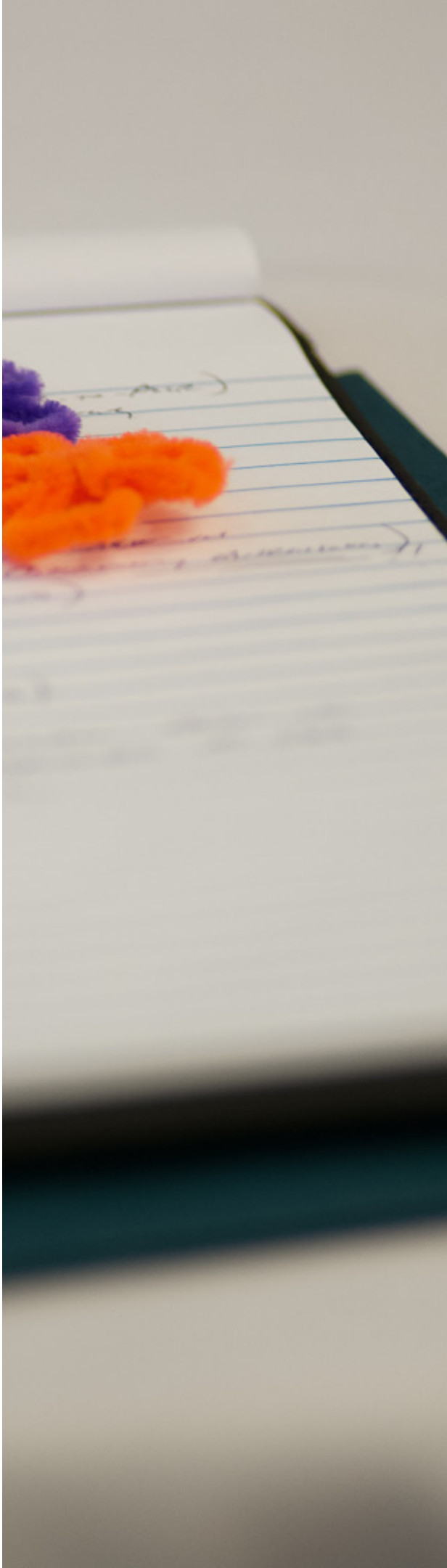

LearningWorks
linking knowledge, policy and practice

LearningWorks works to facilitate, disseminate and fund practitioner-informed recommendations for changes at the 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 founding partners include the Career Ladders Project for the California Community Colleges, the Research and Planning Group for the California Community Colleges, and the California Community Colleges Student Success Network.

ADDRESS 678 13TH STREET, SUITE 103 | OAKLAND, CA 94612
WEB WWW.LEARNINGWORKSCA.ORG