Cal-PASS

California Partnership for Achieving Student Success

Research Summary 2008–2009

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Report Summary | October 2009

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Cal-PASS Research Summary 2008–2009

The following is a summary of questions addressed using Cal-PASS consortia data for the 2008–2009 academic year. Cal-PASS received 56 research requests resulting in 80 completed reports. Some requests were not entirely fulfilled due to either insufficient data or a substantial revision of the request after a preliminary analysis, while other requests resulted in multiple reports. Several reports were initiated in 2008–2009 but won't be completed until 2009–2010.

The diversity of disciplines studied in 2008–2009 was similar to the diversity studied last year. More than one third of the requests in this summary were related solely to math compared to just under one third the previous year; one fifth of requests were related solely to English language arts this year compared to just over one fifth the previous year; one tenth of requests this year were related to science compared to almost one-fifth of requests the previous year (although some research in this discipline is still in progress). Almost one in seven requests involved multiple disciplines including cross discipline research and another one sixth involved non-discipline research such as tracking transition rates. New in 2008–2009 were two career technical education (CTE) requests with one of those from a new Allied Health Professional Learning Council (PLC).

In some cases the data analysis is preliminary and/or in progress. Preliminary or exploratory analyses may not be included in this summary. Anonymous versions of all final reports are available upon request. This report is organized alphabetically by discipline studied and then usually by the report reference number. Please note that all findings are specific to the institutions studied and may or may not generalize to other institutions. In this summary, success is earning a grade of C or better.

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How Does Cal-PASS Research Work?

Cal-PASS' "Action Research" paradigm involves faculty, administrators, and local researchers as integral members of the Cal-PASS research team. Local educators decide the research questions and work with Cal-PASS researchers in an iterative process to refine the analysis and interpret the findings. Based on those findings, they then create and implement solutions with technical assistance from Cal-PASS staff and participate in the evaluation of these efforts.

To facilitate collaborative inquiry between educators from all educational segments, Cal-PASS establishes regional, intersegmental, discipline-based councils, called Professional Learning Councils (PLCs). There are more than 60 Cal-PASS PLCs throughout the state involving career technical education (CTE), counseling, English, English Learners, math, and science. Each month during the academic year, Cal-PASS PLCs made up of educators from a region's elementary, middle, and high schools, community colleges, and universities meet to focus on intersegmental curricular alignment, educational pathways, and effective practices in instruction and student services. The work of the Cal-PASS PLCs begins with their research questions about student cohorts in their local regions. Armed with the information in the research reports, Cal-PASS PLCs develop innovations to increase student success at all levels and transitions.

Common questions become standard reports or Web-based queries produced by Cal-PASS staff while others are handled as custom requests. While most questions in this summary originated from Cal-PASS PLCs, some research efforts are part of grant-funded projects such as the development of data cubes for automated inquiry.

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English Language Arts

Question:
What is the relationship between the last successfully completed high school English course and the first attempted community college English course?
(Several reports were run on this common question.)

Answer:

- A range of 21% to 48% of students attempted a basic skills course as their first attempted community college English course.
- A range of 32% to 54% of students attempted a transferable course as their first attempted community college English course.
- Overall, two thirds to three quarters of students were successful in their first community college English attempt.

Action: Reviewed by local faculty and researchers.
Reference: 2009012, 2009015, 2009029, 2009046a, 2009050, 2009072

Question:
What is the relationship between the last successfully completed community college English course and the first attempted university English course?

Answer:

- The majority of students (62%) enrolled in a second-year composition course as their first English course at the university level.
- First-year composition at the university had the lowest success rates (85%), while students completing all other English courses were successful at rates between 89% and 92%.
- Before transitioning to the university, 82% of students completed a transferable English course in community college.
- The overall success rate for students' first university English course was 75%.

Action: Reviewed by local faculty and researchers.
Reference: 2009029c, 2009059

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Question:
Is there a correlation between an Early Assessment Program (EAP) exemption and success levels in the first-semester English class at the local university?

Answer:

- About one in seven first-year students at the CSU were exempt from the English Placement Test (EPT) based upon their EAP score.
- Almost two thirds of EAP-exempt students enrolled in Expository Writing as their first English course at the CSU.
- Success rates in Expository Writing for EAP-exempt students were high (93%) and were comparable to students who were determined to be college ready in English by the EPT (92%).
- EAP-exempt students had the highest average (mean) grade points in Expository Writing.

Action: Confirmed that EAP appeared equivalent to EPT at that CSU. Expanded analyses requested for next year.
Reference: 2009042, see also 2009041 in math section

Question:
Is there a correlation between final grades received in high school English courses and final grades in transfer-level English classes at the community college?

Answer:

- Students who achieved higher grades in high school general English were slightly more likely to achieve higher grades in their first community college English course and to attempt a higher level community college English course.
- Students who completed Advanced Placement (AP) English as their last high school English course had higher grades in their first transferable English course at the community college than those who completed general high school English.
- The strongest correlations between high school and community college grades were seen for high school AP English and community college transferable English, high school college prep English and community college transferable English, and high school general English and community college degree-applicable English.

Action: Used for Professional Learning Council kickoff meeting and discussion.
Reference: 2009012

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Question:
How are ESL Summer Bridge course participants doing in high school and college after the course?

Answer:

- Thirty-eight of the 41 students who successfully completed the ESL Summer Bridge course and were in the Cal-PASS database were found to have enrolled in an ESL/ ELD course at the high school before enrolling in the Summer Bridge at the community college.
- Twenty-five students were in 11th grade or below when they enrolled in the ESL Summer Bridge.

Action: Information provided to faculty to inform continuing project work. Outcomes will be reported again next year.
Reference: 2009037

Mathematics

Question:
What is the relationship between the last successfully completed high school math course and the first attempted community college math course? *(Several reports were run on this common question.)*

Answer:

- Compared to the highest level passed in high school, 23% to 74% of students' first attempted college math courses were of a lower level, 13% to 24% were of an equal level, and 6% to 34% were of a higher level.
- About half to two thirds of students were successful in their first attempted community college math course.
- Analyses of transitions by demographics were included in the reports.

Action: Reviewed by local faculty, researchers, and administrators.
Reference: 2009008, 2009009, 2009023b, 2009024, 2009027a-b, 2009034b, 2009048, 2009070a-b,2009073

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Question:
What is the relationship between the last successfully completed high school math course and the first attempted university math course? *(Several reports were run on this common question.)*

Answer:

- Compared to the highest level attempted in community college, 32% to 78% of students' first attempted university math courses were of a lower level, 17% to 34% were of an equal level, and 11% to 33% were of a higher level.
- The overall success rates for students' first university math courses ranged from 44% to 84%.
- Analyses of transitions by demographics were included in the reports.

Action: Reviewed by local faculty, researchers, and administrators.
Reference: 2009023a,2009043a,2009049

Question:
What is the relationship between the last successfully completed community college math course and the first attempted university math course? *(Several reports were run on this common question.)*

Answer:

- About a quarter to two thirds of students completed 56 or more units at the community college.
- Compared to the highest level attempted in community college, 1% to 38% of students' first attempted university math classes were of a lower level, 17% to 33% were of an equal level, and 25% to 56% were of a higher level.
- About 72% to 84% of students were successful in their first attempted community college math course.
- Analyses of transitions by demographics were included in the reports.

Action: Reviewed by local faculty, researchers, and administrators.
Reference: 2009060, 2009064a-c

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Question:
What are the pathways students complete before enrolling in Calculus?

Answer:

- About 31% of students who successfully completed high school Calculus attempted community college Calculus.
- Approximately 35% of students who successfully completed community college Calculus had already completed high school Calculus.
- More than half of students who transitioned to community college after successfully competing high school Calculus dropped three or more levels in their first attempted community college math course.
- About 59% of students who successfully completed high school Calculus successfully completed university level Calculus.
- About 56% of students who successfully completed university level Calculus had already successfully completed high school Calculus.
- Nearly 40% of students who transitioned to a university repeated a Calculus course as their first attempted math course after successfully completing high school Calculus.
- About 39% of students who successfully completed community college Calculus successfully completed university level Calculus.
- About half of students completed Linear Algebra or Calculus as their first course at the university after successfully completing community college Calculus.

Action: Reviewed by local faculty.
Reference: 2009007

Question:
What were the first community college math courses students attempted after they completed Pre-Calculus or Calculus in 12th grade and enrolled in community college the following academic year?

Answer:

- Nine percent of students who completed Pre-Calculus in 12th grade completed Calculus or above as their first community college math course.
- Forty-five percent of students who completed Calculus in 12th grade completed Calculus or above as their first community college math course.
- The overall success rate for 12th grade Pre-Calculus students in their first community college math course was 63%.
- The overall success rate for 12th grade Calculus students in their first community college math course was 70%.

Action: Reviewed by local faculty.
Reference: 2009069

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Question:
How do high school math pathways between 8th and 9th grade differ for students who complete different levels of 8th grade math?

Answer:

- The majority of students who received a successful grade in 8th grade Basic Math received a successful grade in their 9th grade math course, regardless of level.
- A slight majority of students (54%) who completed Beginning Algebra in 8th grade enrolled in Geometry in 9th grade and 40% of students repeated Beginning Algebra.
- A small number of students (4%) completed Geometry in 8th grade. Almost all of these students (96%) were successful and almost all of them (91%) enrolled in Intermediate Algebra in 9th grade.
- There was not a strong correlation between 8th grade math course completed and 9th grade math course attempted or success in the 9th grade course attempted within groupings of similar grades (A/B/C vs. D vs. F) in 8th grade.

Action: Reviewed by local researchers.
Reference: 2009010

Question:
Is there a correlation between students' success in their first community college math course and the length of time between completing their last high school math course and taking their first community college math course?

Answer:

- No-break students (went directly to college and attempted math): Compared with the highest level attempted in high school, 49% of students' first attempted community college math classes were of a lower level, 32% were of an equal level, and 20% were of a higher level.
- Break students (delayed college math by at least one year): Compared with the highest level attempted in high school, 56% of students' first attempted community college math classes were of a lower level, 27% were of an equal level, and 17% were of a higher level.
- Two-thirds of no-break students (64%) completed Intermediate Algebra or above in high school before transitioning to the local community college. Just over half (56%) of break students completed Intermediate Algebra or above.
- Just over half of no-break students attempted Intermediate Algebra or above as their first community college math course compared to 44% of break students.
- Overall success rates for the first community college math course were comparable (61% for no-break students vs. 63% for break students).

Action: Reviewed by local administrators and faculty. Follow-up report requested.
Reference: 2009047

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Question:
What is the correlation between 6th grade California Standards Test (CST) scores and the pass rate of Algebra I and Algebra II students in middle school?

Answer:

- Data were available for the academic years 2006–07 and 2007–08.
- There were 1,241 students who had a 6th grade math CST score and a 7th grade math course record.
- Fifty-seven percent (708 students) scored proficient or advanced on their 6th grade math CST test.
- Seventy-three percent (900 students) of 7th grade students enrolled in a general math course, 22% (277 students) enrolled in a Pre-Algebra course, and 5% (64 students) enrolled in an Algebra course.
- Generally, 7th grade course grades increased as the students' 6th grade CST performance level increased.

Action: Reviewed by local administrators and faculty.
Reference: 2009063

Question:
Is there a correlation between the Early Assessment Program (EAP) recommendation, math matriculation pathways, and outcome in the first attempted California State University (CSU) math course.

Answer:

- About 1 in 20 first-year students at the CSU were exempt from the Entry Level Math (ELM) test based upon their EAP scores.
- Almost one third of EAP-exempt students enrolled in Elementary Statistics as their first math course at the CSU.
- Almost one fifth of EAP-exempt students enrolled in Finite Math as their first math course at the CSU.
- Success rates in math for EAP-exempt students were relatively high overall (71%) and were higher than students who were determined to be college ready in math based on the ELM test (56%).
- EAP-exempt students had among the highest average (mean) grade points in the math classes with the greatest enrollments.

Action: Confirmed that the EAP appeared at least as accurate as the ELM at that CSU. Expanded analyses requested for next year.
Reference: 2009041, see also 2009042 in English section

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Science

Question:
What is the relationship between community college and university chemistry grades?

Answer:

- The most frequent course successfully completed at the community college before transferring to a University of California (UC) was Organic Chemistry II.
- Higher grades in community college chemistry were related to higher grades in chemistry at the nearby UC.
- For example, of those earning an A in university chemistry, 78% had earned an A in community college chemistry, 18% had earned a B, and 4% had earned a C.

Action: Reviewed by local faculty.
Reference: 2009005

Question:
How many high school students take science courses their senior year and what courses do they take?

Answer:

- Just over half of seniors took science.
- Of those who took science, about 45% took Physics, 25% took Biology, 20% took Physical Science, and 10% took Chemistry.

Action: Reviewed by local faculty to plan further inquiries.
Reference: 2009020

Question:
Is there a correlation between the number of science courses taken at the community college and whether or not they had taken science in their senior year of high school?

Answer:

- Only about one quarter of students took science courses in their first year at a community college.
- Those students who took science during their senior year in high school were slightly less likely to take science in their first year at a community college.

Action: Reviewed by local faculty to plan further inquiries.
Reference: 2009020

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Question:
What are the grade distributions and success rates in science courses for students who complete the A–G requirements versus the same metrics for those students who do not complete the requirement?

Answer:

- Students most frequently attempted Biology and Astronomy courses for their first community college science courses.
- Students who successfully completed more high school science courses had higher success rates in community college science courses than those who had successfully completed fewer high school science courses ($r=0.202$, $p< 0.001$).

Action: Reviewed by local faculty.
Reference: 2009066

Question:
Compare the chemistry grades of students participating in the Mathematics of Chemistry Applied (MoCHA) in summer 2007 to a high school peer group.

Answer:

- MoCHA participants earned chemistry grades that were 0.65 grade points higher than the comparison group.
- MoCHA participants earned chemistry CST scores that were 45 points higher than the comparison group, but this part of the analysis suffers from missing CST data for some students.
- Results were based upon a single cohort of students and would benefit from replication of the intervention and analysis.

Action: Reviewed by local PLC faculty who implemented MoCHA to inform continuing efforts.
Reference: 2009036

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Question:
How do students progress through the science curriculum in the local area high school?

Answer:

- About half of freshman Biology students complete Chemistry as their next science course.
- Fewer than two thirds of students take the Chemistry course in their sophomore year.
- Almost two thirds of freshman Physical Science students complete Biology as their next science course.
- About half of these students take the Biology course in their sophomore year.
- About 40% of both groups of students complete three science courses.

Action: Reviewed by local researchers.
Reference: 2009030

Interdisciplinary and General Studies

Question:
What are the demographics, programs of study, and outcomes for high school and community college Career Technical Education (CTE) students?

Answer:

- The report provided counts of CTE participants and concentrators by program of study and demographics.
- A CTE participant is a secondary student who has earned one or more credits in any career and technical program area.
- A CTE concentrator is a secondary student who has earned three or more credits in a single CTE program area (e.g., health care or business services), or two credits in a single CTE program area, but only in those program areas where two-credit sequences at the secondary level are recognized by the state and/or its local eligible recipients.
- CTE students were less likely than other students to score far below basic on the language arts California Standards test and were more likely to earn a diploma.

Action: Reviewed by local faculty and researchers to plan upcoming reporting needs.
Reference: 2009013

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Question:
What are the high school and community college outcomes for students who attended local area high schools?

Answer:

- Within three years of enrolling, about three quarters of both students with diplomas and students without diplomas were successful in at least one course and 3% had achieved enough units to transfer to a four-year institution.
- Almost 80% of students attempted a lower level math course as their first attempted local community college math course than the last math course they successfully completed in high school.
- The overall success rate for students' first community college math course was 62%.
- Sixty percent of students attempted a basic skills English course as their first English course at community college.

Action: Reviewed by local faculty and researchers.
Reference: 2009055

Question:
Of the local high school graduates who attend a nearby community college, what percent take a basic skills class?

Answer:

- More than two thirds of these students attempted at least one basic skills course.

Action: Reviewed by local faculty and researchers.
Reference: 2009058a-d

Question:
What is the relationship between the last successfully completed high school math course and the first attempted community college science course?

Answer:

- Overall, students who successfully completed Intermediate Algebra or below as their last high school math course had much lower success rates in community college science courses than students who successfully completed Statistics or above (46% vs. 83%).
- Students were more likely to enroll in biology courses than chemistry or physics as their first community college science course.

Action: Reviewed by local faculty and researchers to support new Allied Health Professional Learning Council.
Reference: 2009074

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Question:
What were the high school graduation rates for EL students in the school district by ethnicity?

Answer:

- Hispanic students had the highest proportion of EL students of all ethnicities studied (19%) and Native American students had the lowest proportion (9%).
- EL students were less likely to have received a high school diploma than native English speakers (72% versus 82% respectively).

Question: How many high school EL students subsequently enrolled at the local community college?

Answer:

- Non-EL and EL students enrolled at the local community college at comparable rates (22% for both groups).

Question:
What were the first English and math courses taken by EL students at the local community college?

Answer:

- EL students were more likely to attempt a non-degree-applicable English course as their first English course at the local community college.

Action: Reviewed by local faculty and researchers.
Reference: 2009065

Question:
What are characteristics of students who enroll in basic skills courses?

Answer:

- Overall, about 5% of students enrolled in a basic skills and transferable course in the same semester.
- Of the concurrently enrolled students, about one third enrolled in a basic skills and a transferable physical education course in the same semester.
- Generally, students who concurrently enrolled in a basic skills and transferable course in the same semester had better success rates than students who only enrolled in a transferable course.

Action: Reviewed by local faculty and administrators.
Reference: 2009071

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Data Cubes and Queries

Last year Cal-PASS IT and research staff developed new data cubes to provide interactive data for specialized student interventions such as learning communities and for broader purposes such as program review. Data in the cubes included variables such as student enrollments and outcomes in courses of interest, course characteristics, and student demographics. These intensive projects are conducted in collaboration with the Cal-PASS IT department and local researchers. More cubes are planned for this year that will provide access to commonly requested information. These new cubes will augment our current Web-based queries that answer pre-defined common questions such as how many students transition from one school to another in a given time period. These queries and cubes are accessed by users via my.CalPASS.org .

Selected Conference Presentations

- Strengthening Student Success, Anaheim, CA, October 2008
- California Association of Institutional Research (CAIR), Pasadena, CA, November 2008
- California Education Research Association (CERA), Rancho Mirage, CA, December 2008
- Research and Planning Group (RP Group)/Chief Information Systems Officers' Association (CISOA), Lake Tahoe, CA, April 2009
- American Education Research Association, San Diego, CA, April 2009

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