



PRECOLLEGIATE SUCCESS, PLACEMENT TESTING, MULTIPLE MEASURES AND PREDICTIVE ANALYTICS AT BAKERSFIELD COLLEGE 2014



This report compiles information from BC's "Achieve the Dream" data, CCCCO progress, success and achievement data, a recent analysis of BC placement based on assessment testing and data derived from a review of over 500 high school transcripts, from 11 feeder schools, used as multiple measures in combination with the placement test to assign students to precollegiate coursework in English, math and reading. The results indicate significant factors regarding the delivery location of the placement test, interpretation and documentation of test results, weight put on the test scores when compared with high school data, and impact on a student's successful trajectory from high school through Bakersfield College to certificate, degree or transfer.

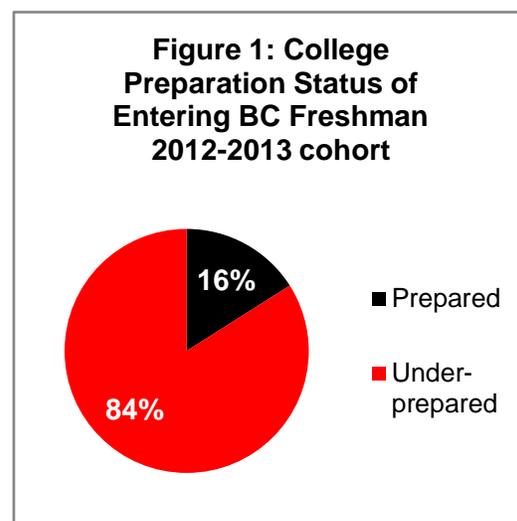
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CURRENT DOCUMENT DATE 10/12/2014

PRECOLLEGIATE SUCCESS, PLACEMENT TESTING, MULTIPLE MEASURES

Background:

1. Underprepared students at BC represent a growing percentage of first-time students (84% in 2013-14)¹.
2. National research indicates that placement testing may result in a 25% (or higher) misplacement of students – predominantly placing students too low. (Please see the references on page 14.)
3. New Title 5 regulations require the use of multiple measures at the time of placement.
4. Research at Long Beach City College (LBCC STEPS study) and a follow-up study including 11 colleges which included BC indicate use of high school transcripts are more predictive for course success than placement scores.
5. Incorrect placement of students may be associated with the inability to thrive and succeed in the transition to college and beyond. BC success rates² are vastly different for underprepared versus prepared students; Underprepared student success was 34.8% in 2012-13 whereas prepared student success was 68%. Identification of prepared versus underprepared students is based upon enrollment in a remedial course. The longer the remedial pathway the less likely students will reach a higher level outcome.
6. BC created numerous new remediation pathways in Academic Development, English and Math to accelerate or compress the curriculum to get students to college level more quickly. (Please see appendices A, B and C with the course pathways for these subjects.)
7. In a pilot implementation project for BC multiple measures, the college collaborated with CalPASS, the CCCCO, and CSUB's CalSOAP³ project to create a cohort of over 500 students in a project called Transfer Making it Happen (TMIH). The project included discipline faculty from Academic Development, English and Math collaborating with BC and CSUB counseling faculty to review high school transcripts and place first-time students into English and Math coursework based upon defined multiple measures.
8. A workgroup created abbreviated Student Education Plans (aSEP), which included any necessary math, English and reading pre-collegiate courses in the first semester, for each of the 454 students with complete information available, based upon BC Achieving the Dream⁴ data that indicated students:
 - a. completing Math and English in their first semester are more likely to succeed and
 - b. students completing a Student Ed Plan (SEP) are more likely to succeed.



¹ CCCCO Scorecard Prepared/Underprepared status determined by student registration in remedial courses.

² Scorecard success outcomes are defined as the success in completing a certificate, degree, transfer or transfer-ready status. (See Appendix G for data source information)

³ CalSOAP: The California Student Opportunity and Access Program (Cal-SOAP) was established by the state legislature in 1978. BC CalSOAP students are part of a special grant project through CSUB where students of low SES are coached by counselors-in-training through the college application process.

⁴ Achieving the Dream data analyze the success rates of students based upon locally defined variables. See Appendix GI for a definition of all data sources.

Methods:

- Research from the Long Beach City College STEPS – (Student Transcript-Enhanced Placement Project) was distributed to the multiple measures work group (see box at right and Appendix D).
- Research and Planning Group and CalPASS Plus Researchers were contacted in order to determine the specific factors from the MMAP (Multiple Measures of Assessment (Appendix E) analysis, which included BC data, were significant in predicting course success.
- Counselors, Deans, Data Coaches, and Academic Development, English and Math faculty convened to develop multiple measures in their discipline areas based on the research data. These multiple measures would be used to place students in English, math and basic skills in addition to the placement tests.
- Multiple Measures were drafted, sample artifacts were used to test the measures and then final multiple measures were determined. (See measures used in Appendix F).
- Two norming and trial placement workshops were conducted using student artifacts: 1) with the original workgroup 2) with a large group of student affairs faculty and English faculty.
- Approximately 500 CalSOAP students were given placement testing at their local high schools. (Previously placement tests were only available on the BC campus).
- 500+ high school students from 11 of 26 feeder schools were oriented to BC campus and given a campus tour.
- Transcripts of the CalSOAP (TMIH) students were examined and multiple measures applied to their placement. Only 454 students had complete records
- Abbreviated Student Ed Plans (SEPs) were created based upon the multiple measures that included any necessary reading, English and math pre-collegiate coursework in the first semester.
- Students were cleared to register in the system and assigned a registration date.
- SEPs were delivered and transcripts returned to the high schools. Students were assigned registration dates.

REFERENCE INFORMATION

Research and Planning Group The RP Group strengthens the abilities of California community colleges to gather, analyze and act on information in order to strengthen student success.

<http://www.rpgroup.org/>

Long Beach City College STEPS (Student Transcript-Enhanced Placement Project)
<http://www.rpgroup.org/projects/student-transcript-enhanced-placement-project>

See appendix D

MMAPS (Multiple Measures of Assessment)
<http://www.rpgroup.org/projects/multiple-measures-assessment-project>

CalPASS Plus

Cal-PASS Plus' mission is to provide actionable data to help improve student success along the education-to-workforce pipeline by providing research, longitudinal data charts, detailed analysis of pre-K through 16 transitions and workplace outcomes, information and artifacts on success factors.

<http://www.calpassplus.org/CalPASS/Home.aspx>

Work Group Participants:

Data Coaches

Janet Fulks – Biology faculty and project lead

Kenward Vaughn – Chemistry Chair

Pat Serpa – Math

Kimberly Van Horne – Academic Development

English Faculty

Pam Boyles – English Chair

Ed Barton – Incoming English Chair

Anne Tatum – Accelerated English Course Developer

Richard Marquez- English Faculty

Scott Wayland - English Multiple measures faculty

Paula Parks – English Faculty designing compressed coursework

Math Faculty

Mike Moretti – Math Chair

Regina Hukill – Incoming Math Chair

Counseling

Sue Granger Dickson – Dean

Kathy Rosellini – Counseling Chair

Administrators

Bonnie Suderman – English and Academic Development Dean

Liz Rozell – Math, Engineering, Science and Industrial Technology Dean

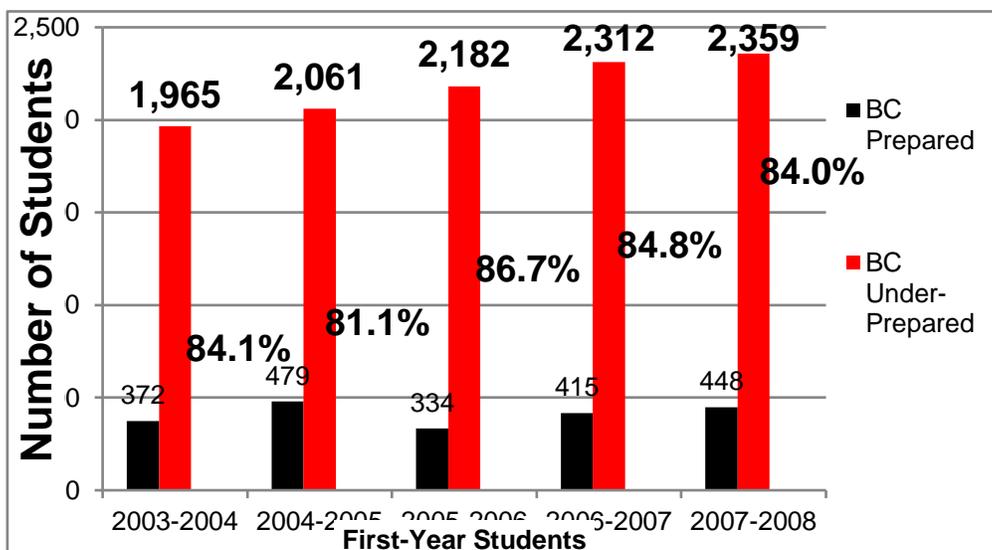
Sonya Christian – President

Sue Vaughn – Admissions and Records

Results:

1. BC under-prepared student numbers for the last 5 years of cohorts. Each cohort is tracked for 6 years so the cohort that began in 2007-2008 and completed last year 2012-13.

Figure 2: Number of students in the last 5 years of entering cohorts that are prepared and under-prepared as determined by placement and registration in a remedial or college level course.



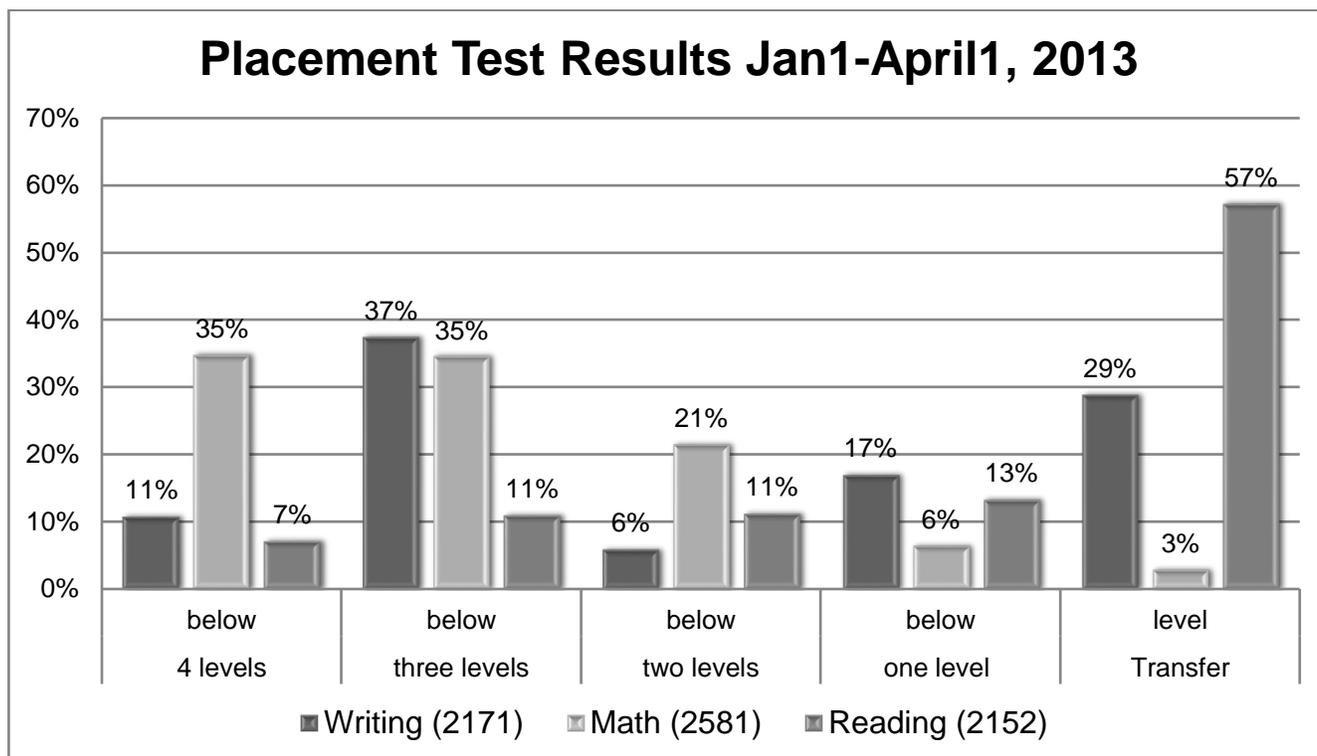
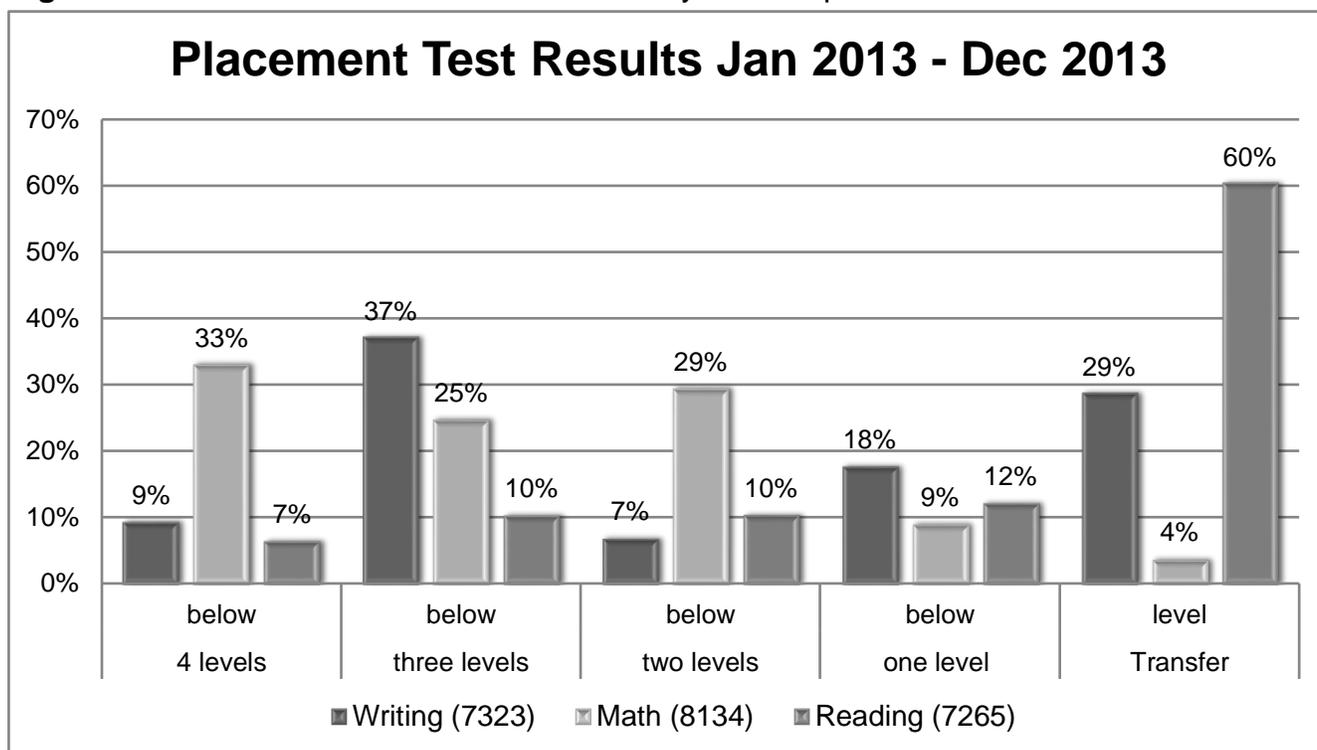
2. Our project data indicated two major changes based upon two main variables:

- the location of the placement testing appears to be very significant
- multiple measures indicated a shift to college level courses based upon the students past record and completed courses.

3. Reviewing the transcripts provided an excellent opportunity to direct qualified students into accelerated and compressed course sections.

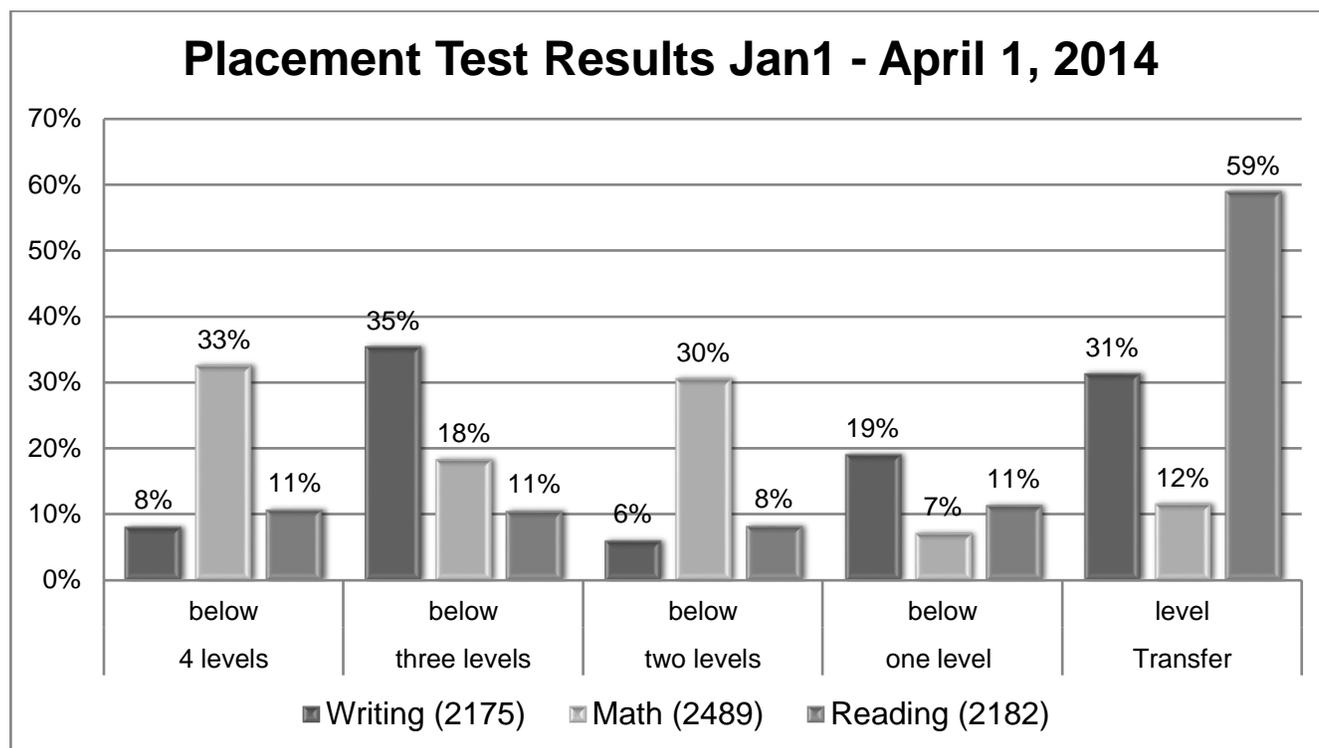
Placement testing location:

The data revealed that testing on the high school campuses, with the same tests and procedures produced increased placement in the college level courses, particularly in math and less so in English. Reading placement testing remained the same. Students placing into transferable college-level math increased 8% (from 3% in the first 3 months of 2013 to 12% in the first 3 months of 2014) and a 2% increase in English (29% in the first 3 months of 2013 to 31% in 2014 placing into college level English 1A) a 2% increase (see figure 3). This represents a 200% increase in students placed into college level math (199 students) and although a smaller increase in English a statistically significant improvement (affecting 67 students).

Figure 3: Placement results for the entire 2013 year⁵ compared to first 3 months of 2013

⁵ Students must test into courses before registration. Whereas success data is examined on an academic calendar, it is more accurate to examine intake data, such as placement, in the calendar year.

Figure 4: Placement test results of first 3 months of 2014 for comparison above with first 3 months of 2013 and entire year of 2013 in the figure above.



Multiple measures placement results:

Figure 5: The figure below represents the pattern for placement in course work including compressed and accelerated courses that span more than one level and are indicated by perpendicular writing. Note that the Math and English and ACDV course numbers go in the opposite direction and that transferable math begins at level 4 whereas English and Reading transfer level is Level 6.

| | | | | | | | | |
|---------|-----------|--------|----------|--|---------------|-----------------|-----------|----------|
| Level 6 | EngB1A | | LRNCB510 | Calculus and higher | | College Reading | Level 6 | TRANSFER |
| Level 5 | EngB50 | EngB53 | LRNCB502 | Transferable Math B1B, B2, B22, B23 | | ACDVB50 | ACDVB61 | Level 5 |
| Level 4 | EngB60 | | | Transferable Math B1A, B4A, B22, B23, Psvch B5 | | ACDVB62 | | Level 4 |
| Level 3 | ACDVB65 | | | MathB70 Int. Algebra | College level | | | Level 3 |
| Level 2 | ACDVB20 | | | Math B 60 Beg Algebra | | LRNC530 | | Level 2 |
| Level 1 | 1b Retest | | | Math B50 Pre-Algebra | | ACDVB72 | 1a Retest | Level 1 |
| Level 0 | | | | ACDVB77 Arithmetic | | | | Level 0 |

Figure 6: Multiple Measures Bumps by High School transcript data (357 total bumps)

| | Total #students | Bumped English | | | | Bumped Math | | | | | | Bumped Reading | | | |
|---------------|-----------------|----------------|------|------|------|-------------|------|------|------|------|------|----------------|------|------|------|
| | | to 6 | to 5 | to 4 | to 3 | to 6 | to 5 | to 4 | to 3 | to 2 | to 1 | to 6 | to 5 | to 4 | to 3 |
| Golden Valley | 43 | 8 | 1 | 11 | 2 | 1 | 0 | 0 | 3 | 3 | 3 | 7 | 3 | 5 | 0 |
| Kern Valley | 6 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 2 | 0 | 0 | 0 |
| Highland | 37 | 6 | 2 | 5 | 1 | 2 | 0 | 0 | 4 | 0 | 2 | 4 | 1 | 2 | 0 |
| Maricopa | 3 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| South High | 49 | 3 | 5 | 8 | 1 | 0 | 0 | 0 | 5 | 1 | 1 | 6 | 1 | 6 | 0 |
| Miramonte | 64 | 11 | 2 | 12 | 0 | 1 | 0 | 0 | 5 | 5 | 1 | 9 | 1 | 4 | 0 |
| Foothill | 77 | 17 | 1 | 6 | 0 | 8 | 1 | 4 | 3 | 2 | 0 | 20 | 0 | 1 | 0 |
| Shafter | 60 | 4 | 1 | 15 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 3 | 3 | 5 | 0 |
| Arvin | 48 | 12 | 0 | 12 | 0 | 3 | 0 | 0 | 2 | 2 | 0 | 7 | 3 | 6 | 1 |
| Monroe | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| Tehachapi | 59 | 5 | 0 | 9 | 2 | 0 | 0 | 0 | 1 | 1 | 2 | 2 | 8 | 6 | 0 |
| | 454 | 70 | 12 | 78 | 6 | 16 | 1 | 4 | 26 | 17 | 11 | 62 | 20 | 35 | 2 |

Figure 7: Multiple Measures used to direct students to compressed or accelerated courses (199 references to accelerated or compressed curriculum)

| | Total #students | ESL | Eng | Eng | math | Accel Read | Comp Read | Comp ESL | Comp Math |
|---------------|-----------------|-----|-----|-----|------|------------|-----------|----------|-----------|
| Golden Valley | 43 | 1 | 18 | 6 | 7 | 11 | 3 | 4 | 3 |
| Kern Valley | 6 | 0 | 0 | 1 | 2 | 1 | 0 | 0 | 0 |
| Highland | 37 | 0 | 4 | 0 | 5 | 2 | 0 | 0 | 2 |
| Maricopa | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| South High | 49 | 0 | 12 | 0 | 3 | 6 | 0 | 0 | 0 |
| Miramonte | 64 | 0 | 17 | 0 | 9 | 12 | 1 | 0 | 1 |
| Foothill | 77 | 0 | 9 | 0 | 4 | 4 | 0 | 0 | 1 |
| Shafter | 60 | 0 | 10 | 0 | 4 | 10 | 0 | 0 | 0 |
| Arvin | 48 | 0 | 5 | 0 | 0 | 10 | 0 | 0 | 0 |
| Monroe | 8 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 |
| Tehachapi | 59 | 0 | 2 | 0 | 4 | 3 | 0 | 0 | 0 |
| | 454 | 1 | 77 | 7 | 40 | 60 | 4 | 4 | 7 |

Summary Results:

- The improved placement scoring moved 199 students into transfer level math and 65 into transfer level English, representing a total of 264 students placed higher due to testing location.
- Multiple measures further improved the placement of 68% of students (307/454)
- Some students were bumped in more than one discipline (e.g. English & math or even English, Reading and Math).
- Some students were both bumped and directed into accelerated courses (e.g. bumped in English and accelerated in Eng B53)
- There were 357 placement bumps among the 454 students and 199 directed to accelerated or compressed courses among the 454 students. For a total of 556 bumps, accelerations or compressions.
- Overall, 571 have tested into or been placed by multiple measures into higher level courses. Some students were placed much higher by one of the English measures (EAP) which indicates college readiness even though many students tested low on the BC placement test, some at 2 or 3 levels below college. (Note: We cannot assume that all those who tested higher were part of the CalSOAP cohort, but we know all those students placed by multiple measures were from the cohort.)
- This project represents a savings in student time of over 500 - 16 week semesters and an efficiency for the college where sections of remedial coursework is not being taken when it is not needed.
- This should result in faster progress to college level outcomes. In addition to the students' saving time, it will reduce credit accumulation and loss of financial aid.

Observations

- There is a correlation between allowing students to test at their high school and higher test scores.
- Students appear to have been directed to the wrong test at times (how they are instructed on ESL testing).
- The ESL testing has very low scores compared to the EAP. There are odd issues with EAP elevating student 2-3 levels.
- The English test and EAP correlate well - placement scores were often level 5 or 6 anyway.
- The math multiple measures resulted in fewer math moves and setting a bar almost higher than the placement test. Many students with good grades in high school Math Analysis, Stats or Calculus tested in at Level 2 & 3 by the placement test. The multiple measures for math prevented moving the students more than one level; failing to move students to comparable math levels completed in high school..
- There are numerous errors in the copying of scores. The placement process is flawed due to the multiple times results are handwritten- this must be automated.
- There were errors in the initial entry of test scores into the computer and translation of scores into levels – this must also be automated

- The complexity of a high school transcript requires a human consideration; although an algorithm may help reduce work load and filter specific factors, there are many factors that are not easily automated.

Conclusions:

- ✓ Students should take 4 years of math and 4 years of English in high school or they will most likely be stuck in a prolonged precollegiate series of courses.
- ✓ Acceleration courses appear to have a higher success rate and provide great opportunities for those students truly testing in at lower levels but responsive to college level coursework.
- ✓ Students should be able to take the test at the high schools as this appears to be significantly more correlated with the work we see on the transcripts and results in higher scores and better assessment of the student's actual abilities and knowledge.
- ✓ Students should be prepped before taking the test by the high schools (practice sessions).
- ✓ Correcting the testing problems alone has a great potential to increase our terminal outcomes measured in the CCCCO Student Progress and Achievement (SPAR).
- ✓ Applying multiple measures to student placement affected quite a few STEM students because it placed them into college level math which makes them eligible to begin STEM classes earlier. This conclusion was based on the course taking patterns in high school transcripts where students had completed biology, chemistry, physics and high level math classes.
- ✓ Multiple measures are likely to increase our high level outcomes as acceleration and bumping puts students significantly closer to the outcomes to start and moves them into a more successful group (e.g. Prepared achieve at 68-70% while underprepared achieve at 34-39%).
- ✓ BC needs to re-engineer the placement testing process.
- ✓ BC needs to collect the data from the process to ensure adequate numbers of sections of courses through enrollment management.
- ✓ BC needs to re-engineer placement processes and look into automating the process based upon predictive values of student data.
- ✓ This process allows for strategic placement of students into summer school as well. Summer school should have registration different from the fall because the priority registration regulations are not applicable to summer coursework, allowing the motivated students an opportunity to deal with pre-collegiate needs before starting the fall semester. This also allows an opportunity to direct students to bridge programs, week zero and specialized student support services such as EOPS, AAMP, MESA and STEM.

Problems identified with placement process:

1. Delivery of testing at Bakersfield College:

- Students directed to incorrect test (ESL not English)
- Testing scores were incorrectly entered as the level not the score

- Testing scores were incorrectly copied down, numbers reversed or wrong levels written down (e.g. score was for level 4 but level 3 was assigned).
- Placement level incorrectly correlated with placement score
- Complaints of testing demeanor and waiting for testing
- Data about testing and prerequisites are entered incorrectly into Banner, blocking qualified students

2. Placement testing issues at high schools

- The high schools desire testing at the location but dislike the process of BC personnel individually turning on and inputting codes in each computer
- Testing personnel were identified as “not helpful”
- Testing personnel seemed to disregard the “time out of class” for high school students and arrived late without notification and labored over the process which was already a long process for students (2 hours late at Tehachapi due to car trouble but students were not released).
- Some complaints that students were not allowed to take a break
- Some complaints that math testing was “last” and testing fatigue reduces scores
- At some location students were given test scores or levels with no explanation of what that meant because counseling and advising were not available

3. Placement testing issues with test takers

- Students had not prepared for taking an exam
- Students not aware of the value and importance to the scheduling (high school testing basically had no personal consequences, why should this have personal value?)

4. Community issues and complaints about testing

- Students who have performed well in Math or English in high school are placed too low at BC
- Students with completed courses such as Math Analysis or Statistics are scoring at Algebra levels
- Community perceptions are that the placement test is inaccurate and devoid of consideration of previous work (this information is from input by 80 high school counselors, interviews with students and community members).

Future Plans:

The students in the cohort will be tracked for success. The students will be invited to a fall inauguration of the “Transfer Making it Happen” cohort. Intrusive counseling and alerts will be used as part of wraparound services. Students will be introduced to Habits of the Mind. A cohort of faculty will be bonded to this cohort as advisors. A draft of potential future actions is below and includes areas of research, interventions, and future implications for scaling to all

students regarding predictive analytics based on positive and negative decision making or actions by students.

RESEARCH (This would be carried out by an external researcher)

- a. Examine historical data for our students, major pathways (work on these for interventions and messaging to students) to discover where students go off the path, are swirling, or lose momentum
- b. Use this information to further refine and inform our pathways and interventions
- c. Track student success with regards to multiple measures placement
- d. Track the cohort for success and improve our Multiple Measures Placement
- e. Track and Measure short term student completion of remedial courses and pathways
- f. Track and Measure student completion of college outcomes SPAR in the CCC Scorecard

INTERVENTIONS (Primarily carried out by BC Faculty and Administration)

Identify, develop and track interventions from the past to define needed messaging to students we need to provide based upon.

- a. Describe interventions from the past
- b. Identify upcoming interventions to track CalSOAP cohort and determine effectiveness
- c. Identify other interventions (used by other colleges) that we have not yet considered or implemented
 - i. Freshman Academy
 - ii. Statways/Quantways
 - iii. Block Scheduling
- d. Using high school data – identify factors that may suggest:
 - i. Counseling intervention
 - ii. Curricular work in conjunction with college and high school faculty
 - iii. Parent interventions
 - iv. Pre-college interventions
- e. Train and design an effective “Early Alert” to involve classroom faculty, advisors, and counselors connecting students to tutoring, financial aid, supplemental instruction, CAS – Critical Academic Skills, writing lab, healthcare, etc.
- f. Provide faculty and staff professional development

PREDICTIVE ANALYTICS (Primarily researcher collaborating with faculty and BC IT department)

- a. Identify key factors predicting success to determine messaging to students
 - i. Enrollment
 - ii. Registration
 - iii. Degree selection or majors
 - iv. Course taking success
 - v. Completion success
- b. Create Nudges and Nods – messaging to help students at each of the stages
 - i. Enrollment

- ii. Registration e.g. “This is not part of the courses required for your major” or “The following class sections are open....”
 - iii. Degree selection or majors
 - iv. Course taking success
 - v. Completion success
-
- c. Determine delivery system for nudges and nods
 - d. Faculty Professional Development
 - e. Interface with high schools & high school messaging to students system

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KCCD Research. *Achieving the Dream Supplementary Data for the Five Student Success Elements* (November, 2013)

<http://www.kccd.edu/Educational%20Services/Institutional%20Research/Achieving%20the%20Dream/BC%20ATD%20Student%20Success%20Disaggregated%20Data%20Dec2013.pdf>

Lagunoff, R. Michaels H., Morris, P, and Yeagley, P. (February 2012) A Framework for Evaluating the Technical Quality of Multiple Measures Used in California Community College Placement at WESTEd.org <http://extranet.cccco.edu/Portals/1/SSSP/Matriculation/Assessment/CCCCOMultipleMeasuresFramework2012.pdf>

Regional Education Laboratory–West and the California Community Colleges Chancellor's Office Types of Multiple Measures Used in California Community College

Mathematics, English, and English as a Second Language Course Placement: Summary Report of Survey Results. December 21, 2011 REL West of WestEd. Retrieved 2/3/2014 from <http://extranet.cccco.edu/Portals/1/SSSP/Matriculation/Assessment/CCCCOMultipleMeasureSurveyReport2011.pdf>

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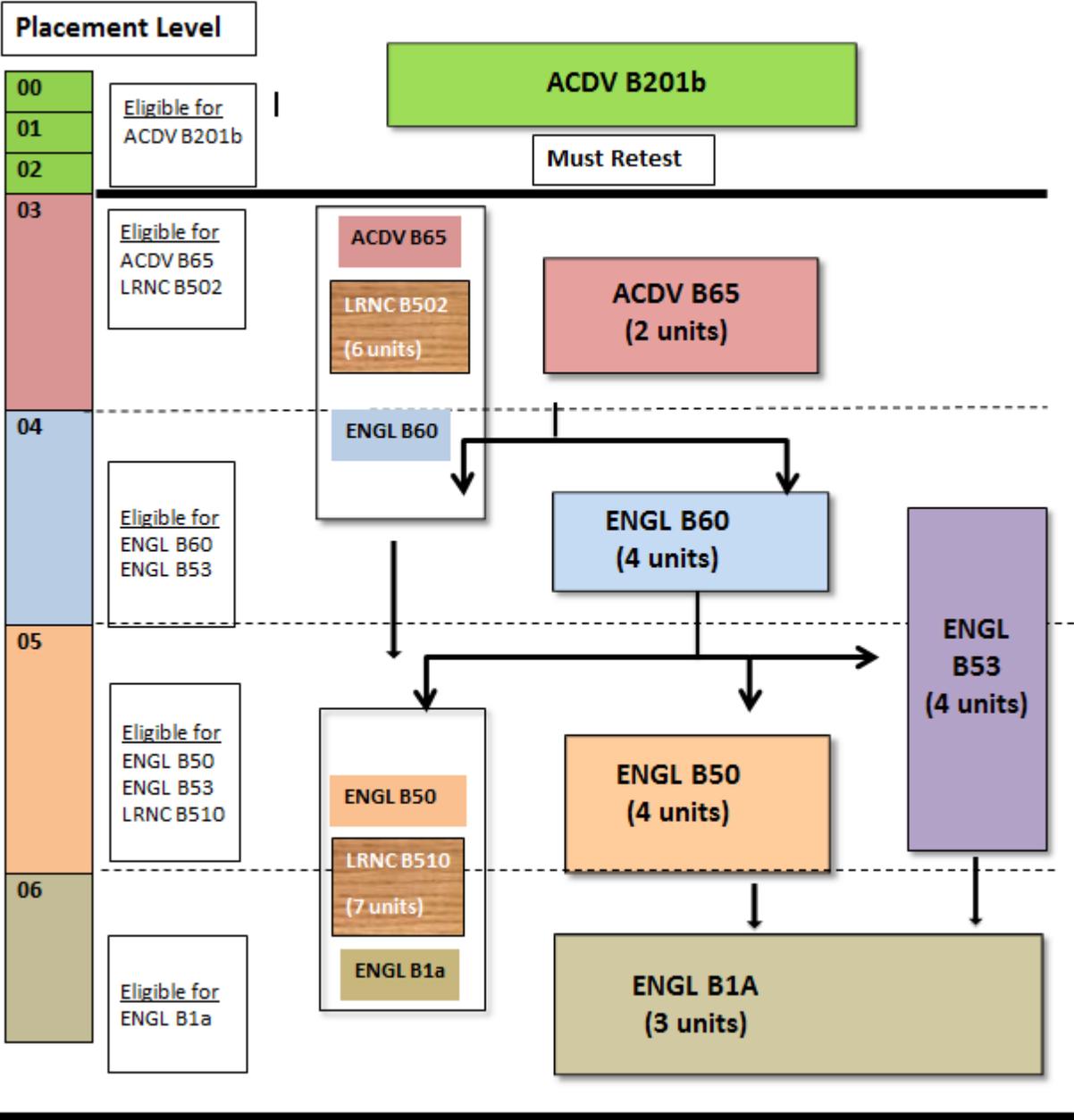
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<http://ccrc.tc.columbia.edu/publications/high-stakes-placement-exams-predict.html>

Skinner, E. California Community Colleges Chancellor's Office. *Basic Skills Accountability: Supplement to the ARCC Report (Nov 2012)*
http://extranet.cccco.edu/Portals/1/TRIS/Research/Accountability/Basic%20Skills/2012/REPORT_BASICSKILLS_FINAL_110112.pdf

Appendix A – English Course Flow Chart

Bakersfield College
Course Placement & Abbreviated Ed Plan
ENGLISH

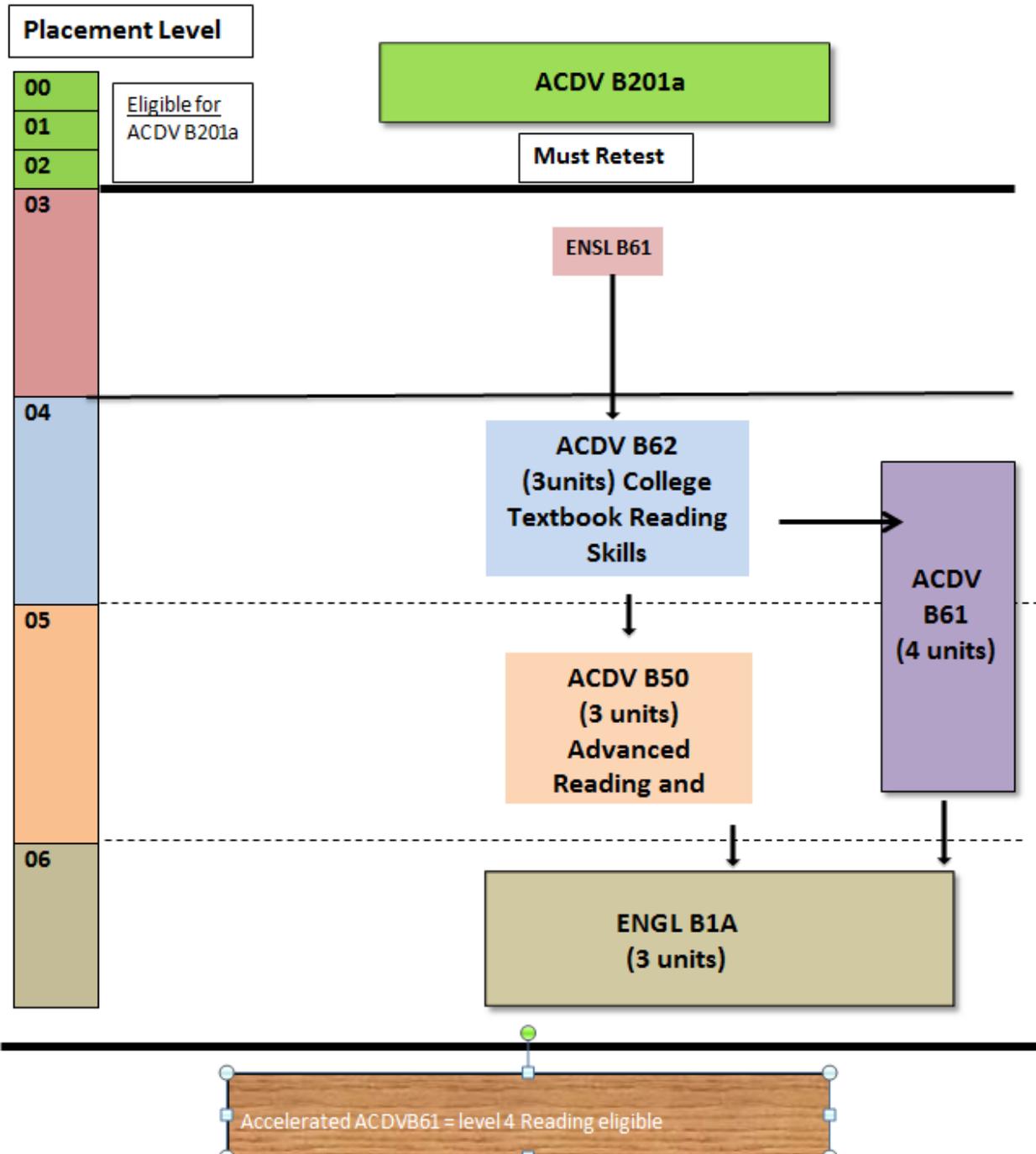
Updated May 1, 2014



Compressed & stacked courses: LRNC = 502, 510. (Writing Express)
 Accelerated courses: ENGL 53 = 04 ENGL-placement/eligibility

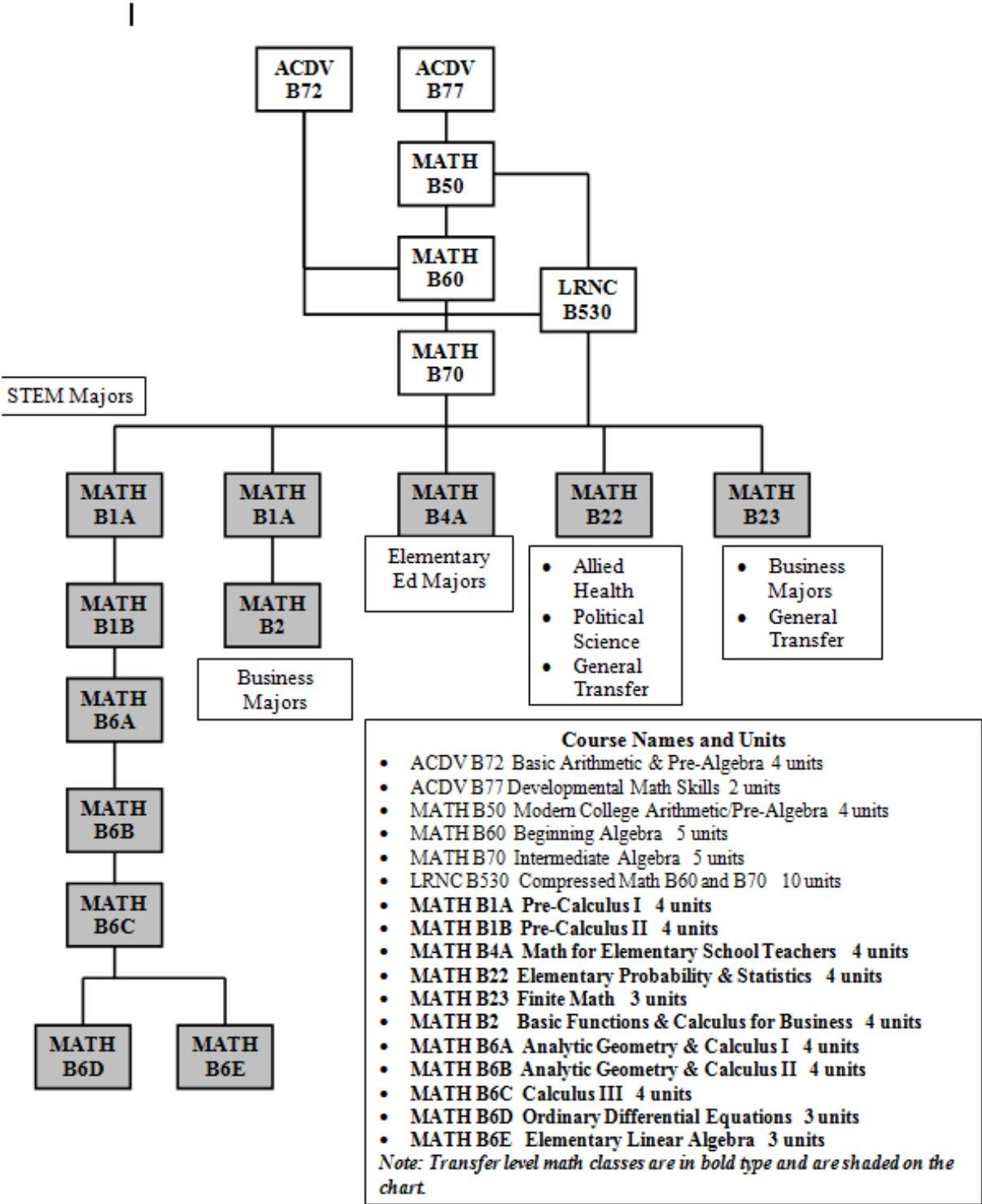
Appendix B – Academic Development Reading Course Flow Chart

Bakersfield College
 Course Placement & Abbreviated Ed Plan
 Academic Development Reading



Appendix C - Math Course Flow Chart

FLOW CHART FOR ACDV & MATH CLASSES



Appendix D - STEPS Research Information

STUDENT TRANSCRIPT-ENHANCED PLACEMENT PROJECT 2012-2014

Project enabling participating colleges to evaluate the utility of high school transcript data in predicting students' abilities to pass college-level English and/or math coursework.

STEPS UPDATE

STEPS RELEASES A RESEARCH BRIEFING SUMMARIZING PROJECT FINDINGS

Explore new insights on using high school transcript data for placement of recent high school graduates in [Stepping Up: Improving Progression in English and Math From High School to College](#).

Want to do a deeper dive into the STEPS methodology and findings? Review the full [STEPS technical report](#).

STEPS SERVES AS A FOUNDATION FOR NEW MULTIPLE MEASURES ASSESSMENT PROJECT AND COMMON ASSESSMENT INITIATIVE

The RP Group will continue assisting institutions in implementing the STEPS methodology while supporting the creation of a Common Assessment Platform for California's community colleges in partnership with Cal-PASS Plus and with support from the California Community Colleges Chancellor's Office. Visit the [Multiple Measures Assessment Project](#) site for more information.

NEXT STEPS

Interested in learning more about how to implement the STEPS analysis at your college? Visit [Participation Instructions](#).

Work at a college in northern California? Consider joining a research alliance comprised of institutions in your region currently implementing the STEPS methodology. Contact [Marc Beam](#), Director of Research and Planning at Shasta College.

Listen to a 45-minute [webinar](#) (10/19/2012) titled "What Role Does Transcript Analysis Play in Multiple Measures Assessment?"

Read more background on [STEPS](#) here or learn more about the transcript analysis done at [Long Beach City College](#).

STEPS RESEARCH

How do we determine if incoming students are ready for college-level work? California's community college system is currently working to address this complex question in a more nuanced, comprehensive and equitable way. Given the passage of the Student Success Act of 2012 and an increasing number of institutions looking to strengthen their use of multiple measures for placement, the Student Transcript-Enhanced Placement Project (STEPS) aims to help California's community colleges grow their capacity to utilize high school transcript data to improve the assignment of recent high school graduates to English and math coursework.

A number of studies, including research released by the [California Partnership for Achieving Student Success](#) and Community College Research Center, indicate that the use of information contained on high school transcripts, such as GPA and grades in math and English courses, may be a viable option to significantly improve our current placement process. Working with the State Chancellor's Office and Cal-PASS Plus, the RP Group recently concluded a pilot study that built on these findings and tested a specific transcript analysis methodology already utilized at Long Beach City College.

Appendix E – MMAPS Research Information

MULTIPLE MEASURES ASSESSMENT PROJECT

Statewide Placement Tool Using Multiple Measures of Assessment

How can improved, data-driven placement lead to more equitable outcomes for high-potential minority and low-income students as they pursue community college and university degrees and certificates?

The Multiple Measures Assessment Project aims to address this question and fundamentally change the landscape of student success in California's community colleges by (1) enabling more efficient student placement and transitions; (2) informing changes to K-12 curriculum and instruction related to college academic preparation and course taking; and (3) reducing costs associated with basic skills courses, for both colleges and students.

The Multiple Measures Assessment Project (MMAP) is a collaborative effort of the RP Group and [Cal-PASS Plus](#), with support from the California Community Colleges Chancellor's Office. MMAP specifically will:

1. **Develop a secure, large and robust data warehouse within Cal-Pass Plus** to collect, store and analyze multiple measures which will include high school transcript and test data, as well as MIS and placement test data for each community college.
2. **Create a complete analytical model** designed to both identify, analyze and validate known multiple measures data points, drawing directly from research obtained through the [Student Transfer-Enhanced Placement Project \(STEPS\)](#), and leverage predictive analytic software to identify new data points that can serve as effective multiple measures.
3. **Engage pilot colleges throughout the process** to assist in development of the analytic tools and user interface, test the tools and models using local college data supplied through the data warehouse, and disseminate final products designed to improve placement.

RELATED INITIATIVES

MMAP links to two additional initiatives also designed to (1) support the creation of a Common Assessment Platform for the California Community Colleges, (2) provide research and modeling on multiple measures of placement across the system and (3) establish a data warehouse that enables the use of multiple measures in course placement decisions. They include:

[STEPS](#): This project provides seminal and ongoing research regarding the use of multiple measures as an effective tool for the placement of recent high school graduates.

Common Assessment Initiative (CAI): This initiative will leverage the research of STEPS, as well as the data warehouse, analytical model and user tools developed through the MMPP to then create a comprehensive, web-based platform for a common assessment in English, Math and ESL.

For more information, contact: Mallory Newell, RP Group newellmallory@fhda.edu

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Appendix F - Multiple Measures as Determined for BC Pilot

English

Measures to use: EAP (college ready) or Placement test into English 1A ESL placement into English 1A, EAP conditional with ERWC (with C or better)

1. HS GPA (3.0 or above without PE) – called Cal Grant GPA
2. Highest English class with grade of B
3. 4 years of English with C or Better
4. AP English jr/sr year with grade of B
5. Reading compass score of 06 level (82-99)
6. Nine of any potential A-G courses (college prep) (This measure was moved down because counting the courses was time consuming and identifying them was not an easy skill to train)

NOTES – do not count CASHEE; KEY for coursework G=general, P=Prep, AP=advance placement, HP= honors (when inadequate funding or students for AP)

ESL placement and English placement equivalence are not leveling

Placement process – goal to use other measures to place students one level higher

(borderline is within three points of cut score)

English Bump A – Placement Score of Level 6 or EAP (college-ready) or AP test (3 or better) or EAP (*Conditional*) and ERWC (C or better) all place directly into English 1A

English Bump B - Borderline placement (within 3 points) with 2 multiple measures student is bumped one level.

English Bump C – 4 Multiple measures student is bumped one level.

Acceleration Guidelines: If students are borderline in their scores, but show good GPA and specific English course strength Accelerate or place into compressed coursework. Where appropriate, potential STEM students with successful high school coursework in Chemistry, Biology, and Physics but scored low in English preventing them from taking STEM coursework (all of the science courses have a Level 5 reading prerequisite) an attempt to fit them into an accelerated or compressed English series to enable them to start taking STEM courses.

Questions: What about widely diverse reading and English test scores?

Math

Measures to use: Placement test score of level 4/5 or 6 or AP score of 3 place in Transfer math by appropriate major. Also if students are placed by UC or CSU in transfer level math we also place students in the same course level.

Other Math bumps

1. Placement test score
2. Highest level math class with grade of B or **higher and**
3. HS GPA of 3.0 or higher

Acceleration Guidelines: If grades in math have been strong and if the student placed lower than the courses completed in high school or border line to the next level by placement scores (within 3 points) and have space for the units (10 units) – accelerate. Where STEM students have been strong in Chemistry, Biology, Physics and Math yet place low (MathB50), accelerate to get to STEM course work sooner.

Accelerated Class LRNC B530: Incoming high school students should be placed in this course only if they (a) place into Math B60 using multiple measures and (b) have strong math grades. This should also apply to STEM students. We cannot stop students from registering in the class that compresses Math B60 and B70, but we HIGHLY recommend that students are aware that this is a very fast paced course with LOTS of homework, not just a class to take because they can't get into a Math B60 regular course.

Questions: Why are students with A's and B's in Math Analysis, Stats and sometimes Calculus testing into Algebra Math level 2?

Reading

1. ENG level 6, or EAP (College-ready) or EAP (conditional) & ERWC with C or better bumped to Read 6 (This represents the vast majority of reading bumps.)
2. If borderline placement score, 1 or 2 points from cutoff and many A-G classes with A's and B's and English placement higher, bumped one reading level.
3. If at Read 00 ACDV201 on border (within 3 points) and good grades in classes that required reading and good overall GPA e.g. history, biology with A's and B's or honors bumped from 0 to level 4 which is next level of reading no 2 or 3.
- 4) Consider if reading level in ENSL low e.g. 3 and writing level high good GPA went in A-G coursework indicating good reading ability in many different courses.

Acceleration Guidelines: Students placing in ACDV B62 and strong probable reading skills as signified in success in A-G courses, AP, Honors or IB courses are accelerated to ACDV B61.

Questions: Why are the ENSL reading scores so different (off target) compared to the reading test scores? Why are some students at Eng. level 6 and with strong grades in A-G course work scoring low on reading (level 4) or 5?

Placement process – goal to use other measures to place students one level higher – MORE ACCURATELY

1. Use placement score + HS GPA of 3.0 or above without PE) + highest level math with B or higher to move up one level (questions – Is this borderline score or any score?)
2. Can we consider the above without borderline and select another for borderline (within 3 or 5 points) + latest recent (last semester) math grade correlated to the class and score (e.g. score 42 elementary algebra test but last math class was intermediate algebra with B)?
3. Will we have a summer bridge and will it affect placement?

Questions:

Do we need to set up a flow chart of placement?

None of the placement test scores relate to ACDV 72 (accelerated) except the paper Regina made?

Coordinating ESL?

Do we give credit for summer bridge?

Do we give option now of student survey?

A-G COURSEWORK - THE SUBJECT REQUIREMENT

[HTTP://WWW.UCOP.EDU/AGGUIDE/A-G-REQUIREMENTS/INDEX.HTML](http://www.ucop.edu/agguide/a-g-requirements/index.html)

- [History/social science \(“a”\)](#) – *Two years*, including one year of world history, cultures and historical geography and one year of U.S. history, or one-half year of U.S. history and one-half year of American government or civics.
- [English \(“b”\)](#) – *Four years* of college preparatory English that integrates reading of classic and modern literature, frequent and regular writing, and practice listening and speaking.
- [Mathematics \(“c”\)](#) – *Three years* of college-preparatory mathematics that include or integrate the topics covered in elementary and advanced algebra and two- and three-dimensional geometry.
- [Laboratory science \(“d”\)](#) – *Two years* of laboratory science providing fundamental knowledge in at least two of the three disciplines of biology, chemistry and physics.
- [Language other than English \(“e”\)](#) – *Two years* of the same language other than English or equivalent to the second-level of high school instruction.
- [Visual and performing arts \(“f”\)](#) – *One year* chosen from dance, drama/theater, music or visual art.
- [College-preparatory elective \(“g”\)](#) – *One year* chosen from the “a-f” courses beyond those used to satisfy the requirements above, or courses that have been approved solely in the elective area.

I. A-G courses

California high schools can submit their courses to UC for “a-g” certification using the [Online Update website](#). A course's "a-g" approval is based on the [“a-g” course evaluation guidelines](#) and the subject-specific course criteria established by UC faculty. Once approved, the "a-g" course is added to the school's ["a-g" course list](#). To satisfy the subject requirements, the course must appear on the school's course list for the year the student took the course.

Appendix G- Data Sources

Achieve the Dream Project <http://www.achievingthedream.org/about-us/our-approach>

The Achieving the Dream National Reform Network leverages four overarching approaches to close achievement gaps and accelerate student success nationwide. As integrated levers advancing ground-level and system-level strategies these approaches in concert with our high-impact focus areas to ultimately accomplish big-picture outcomes.

- Guiding Evidence-Based [Institutional Change](#): We work directly with community colleges, offering support that includes Leadership and Data Coaching, technical assistance, and peer learning experiences for our Network of colleges.
- Influencing [Policy Reform](#): We help state leaders create powerful reform agendas, provide technical assistance, and create peer learning opportunities to establish an environment that supports community college student success and completion.
- Generating & [Sharing Knowledge](#): In service to educators and the community college sector at large, we conduct and make available original research on success strategies and meaningful metrics.
- [Engaging the Community](#): With the nation's most comprehensive network of community college reformers, we have established a common understanding of the barriers to student success and forged commitments to a shared success agenda.

CALIFORNIA COMMUNITY COLLEGE CHANCELLOR'S OFFICE - RESEARCH, ANALYSIS & ACCOUNTABILITY DIVISION

CCCCO Datamart <http://datamart.cccco.edu/DataMart.aspx>

The Research, Analysis and Accountability Unit is responsible for research and evaluation leadership and services to support system-wide decision making and inquiry. Some of the specific functions include:

- Develop and implement statewide and college accountability reporting frameworks.
- Evaluate programs and policies that identify practices to increase student success.
- Explore and describe traditional and non-traditional student pathways across colleges.
- Analyze progress and completion of various student populations.
- Identify factors that contribute to improving student success and institutional performance

The data on the next page indicate the latest scorecard data on high level outcomes of certificate, degree, transfer or transfer ready status for BC.

Bakersfield College

[Click here to select a different college](#)

| | | | | | |
|---------|-----------------|-------------|----------|---------------------|----------------------------|
| PROFILE | MOMENTUM POINTS | | | COMPLETION OUTCOMES | |
| | REMEDIAL | PERSISTENCE | 30 UNITS | DEGREE/TRANSFER | CAREER TECHNICAL EDUCATION |

Completion

[Click here to view trend data](#)

Percentage of degree, certificate and/or transfer-seeking students starting first time in 2007-08 tracked for six years through 2012-13 who completed a degree, certificate or transfer-related outcomes.

| COLLEGE PREPARED | | UNPREPARED FOR COLLEGE | | OVERALL | |
|-----------------------------------|--------|-----------------------------------|------|-----------------------------------|------|
| 67.2% | | 34.8% | | 39.9% | |
| Gender | % | Gender | % | Gender | % |
| FEMALE | 68.8 | FEMALE | 35.8 | FEMALE | 40.5 |
| MALE | 65.6 | MALE | 33.3 | MALE | 39.1 |
| Age | % | Age | % | Age | % |
| UNDER 20 | 68.0 | UNDER 20 | 36.9 | UNDER 20 | 42.5 |
| 20-24 | 47.1 | 20-24 | 22.5 | 20-24 | 24.2 |
| 25-39 | 77.8* | 25-39 | 27.7 | 25-39 | 30.3 |
| 40 OR OVER | 60.0 | 40 OR OVER | 34.6 | 40 OR OVER | 37.5 |
| Ethnicity/Race | % | Ethnicity/Race | % | Ethnicity/Race | % |
| AFRICAN AMERICAN | 55.6 | AFRICAN AMERICAN | 30.8 | AFRICAN AMERICAN | 34.1 |
| AMERICAN INDIAN/ ALASKA NATIVE | 42.9* | AMERICAN INDIAN/ ALASKA NATIVE | 33.3 | AMERICAN INDIAN/ ALASKA NATIVE | 35.3 |
| ASIAN | 86.2 | ASIAN | 51.5 | ASIAN | 61.9 |
| FILIPINO | 56.3 | FILIPINO | 42.9 | FILIPINO | 46.2 |
| HISPANIC | 65.8 | HISPANIC | 30.3 | HISPANIC | 33.5 |
| PACIFIC ISLANDER | 100.0* | PACIFIC ISLANDER | 28.6 | PACIFIC ISLANDER | 47.4 |
| WHITE | 70.0 | WHITE | 40.7 | WHITE | 47.7 |

0%: Cohort with no students attaining an outcome
 N/A: Cohort has no students
 *: Cohort fewer than 10 students

COLLEGE PREPARED: Student's lowest course attempted in Math and/or English was college level
 UNPREPARED FOR COLLEGE: Student's lowest course attempted in Math and/or English was remedial level
 OVERALL: Student attempted any level of Math or English in the first three years

APPENDIX I – Hypothesis Testing for English and Math placement differences between 2013 & 2014

Math Placement Tests

Group 1: Jan 2013-Dec 2013

Group 2: Jan 2014-April 2014

Proportion of students placing into transfer level Math

$$H_0 : \pi_1 = \pi_2$$

$$H_a : \pi_1 \neq \pi_2$$

$$\hat{p}_1 = \frac{x_1}{n_1} = \frac{304}{8108} = 0.037$$

$$\hat{p}_2 = \frac{x_2}{n_2} = \frac{288}{2489} = 0.116$$

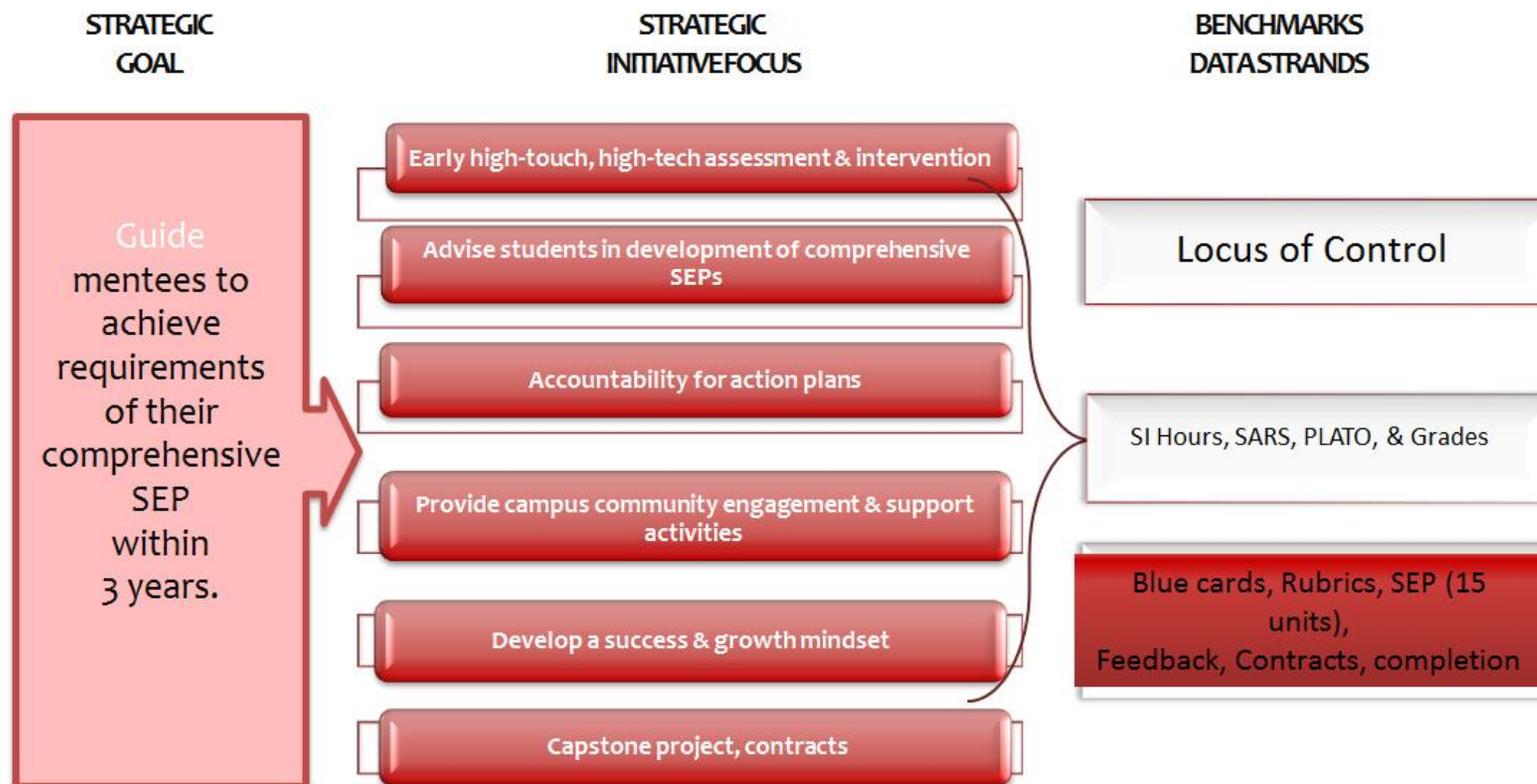
$$\hat{p} = \frac{x_1 + x_2}{n_1 + n_2} = 0.056$$

$$SE = \sqrt{\hat{p}(1 - \hat{p})\left(\frac{1}{n_1} + \frac{1}{n_2}\right)} = \sqrt{(0.056)(1 - 0.056)\left(\frac{1}{8108} + \frac{1}{2489}\right)} = 0.00527$$

$$Z = \frac{(\hat{p}_1 - \hat{p}_2)}{SE} = \frac{0.037 - 0.116}{0.00527} = -14.9$$

$$p = 0$$

Strategy Map



Early High-touch, High-tech Assessment & Intervention

1. A
2. b

Advise Students in Development of Comprehensive SEPs

Accountability for Action Plans

Provide Campus Community Engagement & Support Activities

Develop a Success & Growth Mindset

Capstone Project & Contracts