To: Multiple Measures Project Team

From: Mallory Newell

Date: 10/19/2015

Subject: Retrospective Analysis for Multiple Measures Assessment Project

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Key Findings:

- Using the piloted multiple measures model, on average, 39% of students were assessed into a higher level math course than they were originally placed using the ACCCUPLACER test, (suggesting these students are underplaced), 27% of students were assessed into an equivalent level, and 13% were assessed into a lower level course (suggesting they were overplaced).The remainder of the cohort did not have a multiple measures assessment available.
    - The highest rate of underplacement was in Math 114 (1 level below) with 62% assessed into a higher level. Math 10 (college level) had the second highest rate of underplacement with 42% assessed into a higher level than originally placed.
    - Applying the multiple measure model to the math placement of our ethnic target groups revealed that 38% of students who placed into Math 114 (1 level below) and 55% who placed into Math 212 (2 levels below) but could be assessed into a higher level course are from an ethnic target group. If placed using the model, these students would go directly into college-level English with a projected success rate of 75% or better, likely increasing the throughput rate of these targeted students.
- On average, 79% of students who placed into EWRT 211 (1 level below) or EWRT 200 (2 levels below) were assessed via multiple measures into a higher level course, suggesting that these students were possibly underplaced using the current placement test only.
    - 50% of students who placed into EWRT 211 but were assessed into a higher level course via the multiple measures model are from an ethnic target group. These students would go directly into EWRT1A (college level), based on the multiple measures model, with a predicted success rate of 75%.

Background: De Anza College is one of 27 pilot colleges participating in the Multiple Measures Assessment Project (MMAP) as part of the Common Assessment Initiative (CAI). The MMAP project asks pilot colleges to analyze a retrospective cohort of students using the multiple measures rule sets, which uses high school courses, grades and overall GPA to predict students' placement in college-level math and English courses. The rule set, or model, places students in a math and English course where their predicted success rate will be at least a 2.2 GPA. This retrospective analysis will enable a pilot college to evaluate the effectiveness of its current placement process and the use of high school transcript data to predict math and English course placement. Once the retrospective analysis is discussed with the multiple measures team on campus, De Anza is asked

to use the multiple measures model to place a cohort of students in spring 2016. Appendix A includes a summary of the multiple measures models.

At the end of the term, we are asked to provide back to Cal-PASS Plus the students who were placed using the model, their multiple measures placement level, their ACCUPLACER placement level, the courses they enrolled in, and the grade they received. These data will be included in the statewide analysis of multiple measures, which will then inform the adoption of a statewide math and English model. The model will be validated and available to all community colleges in fall 2017, along with the CAI test.

In addition to the math and English model, pilot colleges are asked to implement 1 of 6 recommended Non Cognitive Variable (NCV) scales to a cohort of students and report the responses to Cal-PASS Plus at the end of spring 2016. The data will be used to determine the value added of incorporating the NCV to the multiple measures model. Appendix B includes the NCV scales recommended by The RP Group.

Additionally, since multiple measures has been proven to reduce the need for remediation in state and national studies—with one result being higher throughput rates for minority students to college-level courses—the Chancellor's Office has adopted the multiple measures models as a valid outcome for the state equity report.

Methodology: The data analysis includes first-time college students who enrolled in a fall 2014 math or EWRT course and took a placement test within the past year. These data were submitted to Cal-PASS Plus who later returned a retrospective file, listing the recommended assessment level for each student. Their recommendation was based on each student's high school transcript and multiple measures models. All the analyses in this document reflect enrollment and course success rate for fall 2014, and include the target student population groups African, Filipino, and Latino/a students.

Math Assessment

Table 1. Math Placement by ACCUPLACER Test and Actual Course Success – Fall 2014

Placement Level	Placement by Test	Enrolled in Course Which Placed		Passed Course Which Placed	
	N	N	%	N	%
Math 10/Stats	67	44	66%	35	80%
MATH 114/1 Below	112	90	80%	66	73%
MATH212/2 Below	166	123	74%	81	66%
MATH210/3 Below	40	33	83%	24	73%
MATH41/42/43PreCalc	84	35	42%	27	77%
MATH1A/Calculus	51	26	51%	20	77%

Table 1 displays 520 students who placed into a math course under the current placement process, the percent of these students who enrolled in the course in which they placed, and their success rate in the target course in fall 2014.

- The highest rate of students enrolling in the course in which they placed is from basic skills courses, Math 210 (83%), Math 114 (80%), and Math 212 (74%).
- On average, students who enrolled in the course in which they placed had a success rate of 74%. The average success rate for all students enrolled in these courses, not just those within this cohort, is 61%. Note that the average predicted success rate for the target college course for multiple measures is 75% or higher.
- The success rates for cohort students in Math 114 and Math 210 was each 73% while the success rates for all students in the course was 59% for Math 114 and 54% for Math 210.
- The highest success rates for the cohort were exhibited in Math 10 at 80% compared to 63% for all students in the course.

Table 2. Comparison of Math Placement Using ACCUPLACER Test vs. Multiple Measures High School Transcript Assessment – Fall 2014

Placement Level	Placement by Test	Multiple Measures Level Equivalent		Multiple Measures Level Lower		Multiple Measures Level Higher	
	N	N	%	N	%	N	%
Math 10/Stats	67	16	24%	9	13%	28	42%
MATH 114/1	112	2	2%	20	18%	69	62%
MATH212/2 Below	166	3	2%	35	21%	69	42%
MATH210/3 Below	40	6	15%	N/A	N/A	11	28%
MATH41/42/43PreC	84	58	69%	9	11%	13	15%
MATH1A/Calculus	51	25	49%	1	2%	24	47%

Note: Not all students who took a placement test were matched by Cal-Pass Plus with high school transcript data. These students would not have a multiple measures assessment, thus totals will not add to 100%.

Table 2 displays the 520 students and their placement level via our current ACCUPLACER test and the multiple measures assessment level based on high school transcripts.

- Using the piloted multiple measures model, on average, 39% of students were assessed into a higher level math course than they were originally placed, (suggesting these students are underplaced) 27% of students were assessed into an equivalent level, and 13% were assessed into a lower level course (suggesting they were overplaced).
- The highest rate of underplacement was in Math 114 with 62% of the cohort assessed into a higher level course.
- The highest rate of overplacement was in Math 212 with 21% of the cohort being assessed lower than they were placed. It should be noted that the statewide recommendation on the use of multiple measures is to overplace at a higher rate rather than underplace, and provide student support services when needed.
- The highest rates of equivalency placement were in Math 41/42/43 with 69% agreement between the current De Anza placement test and piloted multiple measures.

Table 3. Math Placement of Ethnic Target Groups Using Multiple Measures High School Transcript Assessment – Fall 2014

Placement Level	Multiple Measures Level Higher	
	N	%
MATH 114/1 Below	26	38%
MATH212/2 Below	38	55%
MATH210/3 Below	8	73%

Note: Targeted groups include African American, Filipino and Latino.

Table 3 displays targeted students who placed into a math course but were assessed into a higher level course using multiple measures.

- 73% of students who placed into Math 210 but were assessed into a higher level using multiple measures were from targeted groups. This group could either go directly into college-level or one level below, saving them time and increasing their likelihood of throughput.
- 38% of students who placed into Math 114 but were assessed into a higher level using multiple measures were from a targeted group. If placed using the model, these students would place directly into college-level math with a predicted success rate of 75%, likely increasing the throughput rate of these targeted students.

EWRT Assessment

Table 4. EWRT Placement by ACCUPLACER Test and Actual Course Success – Fall 2014

Placement Level	Placement by Test	Enrolled in Course Which Placed		Passed Course Which Placed	
	N	N	%	N	%
EWRT1A	252	133	53%	108	81%
EWRT211/1 Below	269	146	54%	114	78%
EWRT200/2 Below	49	25	51%	23	92%

Table 4 displays 570 students who placed into an EWRT course under the current placement process, the percent of these students who enrolled in the course in which they placed, and their success rate in the target course in fall 2014.

- The average success rate for cohort students in EWRT 211 is 78% compared to 75% for all students in the course. The course success rate for cohort students and all students in EWRT 200 was the same at 92%.

Table 5. Comparison of EWRT Placement Using ACCUPLACER Test vs. Multiple Measures High School Transcript Assessment – Fall 2014

Placement Level	Placement by Test	Multiple Measures Level Equivalent		Multiple Measures Level Lower		Multiple Measures Level Higher	
	N	N	%	N	%	N	%
EWRT1A	252	195	77%	47	19%	N/A	N/A
EWRT211/1 Below	269	28	10%	31	12%	201	75%
EWRT200/2 Below	49	7	14%	N/A	N/A	40	82%

Note: Not all students who took a placement test were matched by Cal-Pass Plus with high school transcript date. These students would not have a multiple measures assessment, thus totals will not add to 100%.

Table 5 displays the 570 students and their placement level via our current ACCUPLACER test and the multiple measures assessment level based on high school transcripts.

- Using the piloted multiple measures model, on average, 79% of students who placed into EWRT 211 or EWRT 200 were assessed into a higher level course, suggesting that these students were underplaced using the placement test only.

Table 6. EWRT Placement of Ethnic Target Groups Using Multiple Measures High School Transcript Assessment – Fall 2014

Placement Level	Multiple Measures Level Higher	
	N	%
EWRT211/1 Below	101	50%
EWRT200/2 Below	28	70%

Note: Targeted Groups includes African American, Filipino and Latino.

Table 6 displays targeted students who placed into an EWRT course but were assessed into a higher level course using multiple measures.

- 50% of students who placed into EWRT 211 but were assessed into a higher level course were from a targeted group. These students could go directly into EWRT 1A, based on the multiple measures model, with a predicted success rate of 75% or higher.
- 70% of students who placed into EWRT 200 but were assessed into a higher level course were from a targeted group.