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# MMAP Pilot Evaluation Project

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## Summary:

In accordance with the Multiple Measures Assessment Project (MMAP) underway statewide, Gavilan College conducted a home-grown MMAP placement pilot using a cohort of students identified in spring 2016. Using a variety of data points, students were placed using multiple measures assessment procedures. Though a small number, results of the MMAP pilot are extremely encouraging. Success rates for multiple measures placed students compare favorably with their traditionally-placed peers. OIR recommends expansion of multiple measures placement.

## Selection Criteria and Placement Strategy:

The counseling department recruited students into the multiple measures assessment pilot using a straightforward sample of students from Christopher High School of the Gilroy Unified School District. After students indicated to their high school counselors that they were planning to attend Gavilan College in fall 2016, the high school counselors forwarded their high school transcripts to Gavilan College counselors. Attrition from the initial sample of about 100 students resulted from a few factors. The requirement that students complete Gavilan College assessments and a “Kick-Start” session limited those willing to participate. In addition, the use of EAP scores thinned the analysis sample as well. This resulted in a final analysis sample subjected to multiple measures assessment consisted of 30 students.

Gavilan College counselors used a locally derived model for the pilot project. First, counselors evaluated whether students had assessment scores through the California Early Assessment Program (EAP). If students achieved an EAP score of level 4 (i.e., Standard Exceeded) the student was placed into the appropriate corresponding college level course. If students did not achieve a score at level 4, or if they did not have EAP scores at all, counselors went on to use their high school transcripts for placement.

Using the submitted high school transcripts, counselors first evaluated students’ cumulative high school Grade Point Average (GPA). If students met the minimum of GPA 2.5, counselors then evaluated their final grades in their high school English and math courses. In the case of English, counselors evaluated whether students earned a B- or better in their most recent junior or senior level English course. If the conditions were satisfied, the student was placed into transfer level English at Gavilan College. In the case of math, counselors evaluated whether students earned a grade of B- or better in their Algebra II course. If the conditions were satisfied, the student was placed into transferrable math at Gavilan College. If students failed to earn a B- or better in the courses identified above, but did achieve a B- or better in more advanced and/or Advanced Placement (AP) courses, this “plus factor” could also serve in lieu of the aforementioned course grade condition. For example, if a student earned a grade of C+ in Algebra II (baseline course), but earned a grade of A- in precalculus (more advanced course), the student would be placed into transferrable math due to the grade in the more advanced class exceeding the B- guideline for the baseline course.

# Analysis:

The following series of tables present the results of the multiple measures assessment pilot project. Each table follows the same format. The first column lists the outcome. The second column lists the percent of students falling into the given outcome. The third column lists the unduplicated headcount of students falling into the given outcome. The final column represents the total number of students in the identified cohort.

Using Accuplacer, students represented in tables 1 and 3 were placed at the 2xx or 4xx levels in English or math (see Appendix A). However, after a review using multiple measures, these students were “bumped up” to transferrable English or math. Tables 2 and 4 represent traditionally-placed students in transferrable courses during the same corresponding terms.<sup>1 2</sup> For all four tables, the period of analysis is the summer and fall 2016 terms. Updated results from spring 2017 will be available by the end of the grading period.

## Data Tables: <sup>3</sup>

**Table 1: Success/Failure Rates for Students Placed Into ENGL 1A Using Multiple Measures**

Success/Failure	Percent	Headcount	Cohort N
Failure	22%	2	17
Success	78%	7	17
Total	100%	9	17

**Table 2: Success/Failure Rates for Students Placed Into ENGL 1A Using Accuplacer Only**

Success/Failure	Percent	Headcount	Cohort N
Failure	49%	242	494
Success	51%	252	494
Total	100%	494	494

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<sup>1</sup> Tables 2 and 4 are limited to students with an initial Accuplacer-based placement at the transfer level. The tables do not include students taking transferrable courses after completing a remedial sequence.

<sup>2</sup> In tables 1 and 3, the cohort N is higher than the final total of students attempting the transferrable course because not all students in the pilot cohort attempted English or math during their first term at Gavilan. For example, table 1 presents a cohort N of 17, but a headcount total of 9. This is because only 9 of the 17 multiple measures placed students actually attempted ENGL 1A during summer/fall 2016.

<sup>3</sup> The analysis is limited to students registered at census. Success is defined as earning a grade of C or better. No overlap exists between the cohorts in tables 1 and 3. The combined unduplicated N for tables 2 and 4 is 971. In other words, some students appear in both tables 2 and 4 because they attempted both English 1A and transferrable math in the same term. The magnitudes of the effects observed in tables 1 and 3 exceed their associated standard errors. However, this finding is subject to the limitations outlined in the following section. The data are drawn from GIDS tables PEOPLE, CLS\_GRADES, SECTION, STUTEST, and PLACEMENTS via Hyperion on 2017.01.17 at 1139 hours. Data cover the terms 201650 and 201670.

**Table 3: Success/Failure Rates for Students Placed Into Transferrable MATH Using Multiple Measures**

Success/Failure	Percent	Headcount	Cohort N
Failure	20%	1	13
Success	80%	4	13
Total	100%	5	13

**Table 4: Success/Failure Rates for Students Placed Into Transferrable MATH Using Accuplacer Only**

Success/Failure	Percent	Headcount	Cohort N
Failure	39%	199	509
Success	61%	310	509
Total	100%	509	509

## Limitations:

The overall cohort used in the pilot was only 30 students. As with any social science research, more is generally better. A sample of 30 from a population of 971 is associated with a margin of error of approximately  $\pm 18\%$ .<sup>4</sup> However, even if one were to subtract 18 percentage points from the multiple measures success rates in tables 1 and 3, these adjusted success rates would still be slightly greater than the success rates for the traditional placements represented in tables 2 and 4. Thus, even if we take the margin of error into account, multiple measures-placed students fared no worse than their traditionally-placed peers.

The students in the pilot were not a random sample of those matriculating at Gavilan College during fall 2016. The analysis sample was drawn from graduates of a single high school and was subject to substantial attrition due to participation requirements. As a result, it is possible that students in the analysis sample are systematically different than the total population of new students in fall 2016 due to unmeasured characteristics. This results in a form of “sampling bias.” If true, the risk of making an erroneous conclusion increases.<sup>5</sup> However, given the uniformity of the results, the size of the observed effect given the estimated margin of error, and the large body of existing statewide and national research on multiple measures that is in line with the findings of this pilot project, OIR believes the conclusions in the following sections are nonetheless appropriate.

## Conclusion and Recommendations:

Based upon the information in the four tables presented above, it is reasonable to conclude that the use of high school performance data appropriately places students into

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<sup>4</sup> Presumes a 2-tailed 95% confidence interval

<sup>5</sup> To correct for this potential bias, social scientists typically employ any of a number of advanced research methods. However, given that the pilot only consisted of 30 students (a low overall N), such research methods were not attempted.

transferrable courses at Gavilan College. Even accounting for a substantial margin of error, the evidence presented above suggests that students placed using multiple measures do no worse than their traditionally-placed peers.

It is critical to remember that these conclusions are in keeping with both statewide and national research showing that multiple measures placement is an effective tool. Moreover, national research demonstrates that each level below transfer level in which a student is placed is associated with substantial reductions in their likelihood of persistence, success, graduation, and transfer. Previous flow success rate analysis conducted by OIR demonstrates this leaky pipeline effect on a local level. For all of these reasons, multiple measures placement is a promising tool for Gavilan College as it more appropriately places students into courses suitable to their levels of preparedness while also increasing their odds of success.

On a human level, perhaps the most important takeaway from this multiple measures assessment pilot project is the following observation. Even with the limited overall headcount, the vast majority of the students in the pilot group were successful in transferrable math and English 1A on their first attempt (see tables 1 and 3). If the same students had been placed using traditional methods, they would be taking courses at the remedial or nontransferable level. Their success story demonstrates that such a remedial placement would have been inappropriate and unnecessary. This is a stark reminder of the perils of relying upon a limited set of data for placement and a reminder of the powerful implications of multiple measures assessment for college placement.

Thus, OIR concludes that the use of multiple measures should be expanded and implemented as soon as is feasible and prudent.

# Appendix A: Student Counts Provided to IR by Counseling

## ACCUPLACER English Placement of Students Placed into ENGL 1A from High School Performance Data

		WRITING PLACEMENT		
		ENGL 1A	ENGL 250	ENGL 440
READING PLACEMENT	ENGL 1A	--	--	--
	ENGL 260	7	6	--
	ENGL 420	--	4	--

## ACCUPLACER Math Placements of Students Placed into College Level Math from High School Performance Data

Math 430	5
Math 240	2
Math 5 OR 14 → Math 8A	4
Math 5, 6, 7, 12 OR 14 → Math 8A	2

NOTE: These tables originally contained lists of G#s for OIR to track. The G#s have been suppressed in favor of cell counts so as to protect student privacy.