

**MULTIPLE MEASURES IN ASSESSMENT:
THE REQUIREMENTS AND CHALLENGES
OF MULTIPLE MEASURES IN THE CALIFORNIA
COMMUNITY COLLEGES**

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MICHELLE GRIMES-HILLMAN, MT. SAN ANTONIO COLLEGE, CHAIR

CAROLYN HOLCROFT, Foothill College

JANET FULKS, BAKERSFIELD COLLEGE

DENNIS LEE, AMERICAN RIVER COLLEGE

PHIL SMITH, AMERICAN RIVER COLLEGE

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INTRODUCTION

ASSESSING A STUDENT'S ABILITY TO BE successful in courses and programs is an important and necessary aspect of student success. Two major practices exist to predict a student's likelihood of succeeding in a course or program: 1) Successful completion of prerequisite or advisory courses (as documented on transcripts) and 2) the assessment for placement process. These two methods are presumed to be mechanisms that ensure that a student has acquired the knowledge and skills necessary for success.

Presuming a student is prepared for a course through the completion of a prerequisite course is a rather straightforward process; however, placing a student using an assessment for placement process is necessarily more complicated, as such placements cannot be made based on assessment test scores alone. Some students may possess necessary course or program skills but have difficulty demonstrating those skills on standardized tests or fail to prepare adequately for an assessment test. For this reason, Title 5 §55502(i) clearly mandates that California community colleges use multiple measures in their assessment processes: "Multiple measures' are a required component of a district's assessment system and refer to the use of more than one assessment measure in order to assess the student" [emphasis added]. The requirement to use multiple measures is reiterated in Title 5 §55522(a): "When using an English, mathematics, or ESL assessment test for placement, it must be used with one or more other measures to comprise multiple measures."

While multiple measures have always been required by Title 5, adequate research into the accuracy of these measures has not been readily available to inform educational decisions. Individual colleges have made various decisions regarding the use of subjective measures and have therefore reported differing experiences. While colleges are required to employ assessment tools that have been validated, no mandate exists for a corresponding effort to validate the application of multiple measures. This paper addresses the broader issue beyond simply evaluating a transcript for previous coursework or limiting placement based on an exam; it examines the use of multiple measures in addition to placement tests as a way to improve the overall assessment of students' abilities.

Title 5 §53200 gives academic senates the responsibility for making recommendations about academic and professional matters concerning “standards or policies regarding student preparation and success.” The intent behind prerequisites and placement processes, including the selection and application of multiple measures, is to ensure or enhance student success through proper preparation. Therefore, academic senates must be directly involved and play a leading role in facilitating and developing recommendations about assessment processes and the use of multiple measures at both local and state levels.

The concept of applying multiple measures for placement is often misunderstood by local colleges, and data are sometimes difficult to collect. Even within a single college placement practices may vary among different disciplines. Multiple methods and placement practices were summarized by Regional Education Laboratory (REL) in 2011. A survey was implemented to examine current practices and applications of multiple measures. Of the 112 colleges in the California Community College (CCC) System, 59, or just over half provided survey information about multiple measures (See Appendix A). The survey noted that only 48 of the 59 responding colleges reported how they used multiple measures, and 34 of the colleges reported using a “weighted score” of placement tests and then adding or subtracting points for multiple measures. Twelve colleges reported relying most heavily on qualitative data to direct placement decisions, placing less consideration on placement test scores. REL reported that weighting of multiple measures varied widely and that only a few colleges used regression analysis to predict success.

In this paper, “use of multiple measures for placement,” or simply “multiple measures,” refers to a process in which colleges rely on more than a single factor to determine student readiness for a course or program. The purpose of this paper is to do the following:

- review the value of and reasons for using multiple measures in California community colleges for placing students into the curriculum;
- address the role of the academic senate, discipline experts, and counseling faculty in multiple measures placement;
- provide guidance regarding best practices for implementing multiple measures in order to improve placement accuracy.

In addition, the paper will explore the implications of multiple measures on current issues involving efforts to implement a common assessment across the state, including unresolved issues of portability of assessment for placement results, accuracy and reliability of assessment, and local autonomy regarding assessment and placement decisions.

REGULATORY FRAMEWORK

REGULATORY GUIDELINES FOR MULTIPLE MEASURES

TITLE 5 §§55502(1) AND 55522(A) EXPLICITLY require the use of multiple measures in assessment for placement. Thus, the question for California community colleges and districts is not whether to use multiple measures, but which measures to use and how to apply them.

Colleges have latitude in what types of multiple measures may be used in their placement process. In addition to assessment tests, Title 5 §55502(i) notes that additional measures may include “interviews, holistic scoring processes, attitude surveys, vocational or career aptitude and interest inventories, high school or college transcripts, specialized certificates or licenses, education and employment histories, and military training and experience.” Furthermore, Title 5 §55522(a)(2) allows the Chancellor’s Office to “identify other measures of a student’s college readiness that community college districts may use for student placement into the college’s curriculum.” This section of Title 5 has permitted some colleges to explore the use of high school transcripts for placement, as well as the scores earned through the California State University’s (CSU) Early Assessment Program.

As noted in these Title 5 sections, the initial assessment process must consist of multiple measures, meaning that all the various measures must be collected and evaluated prior to determining the student’s placement. Colleges that rely only on assessment tests for initial placement but then allow other measures to be considered on appeal of the decision are not employing a multiple measures approach to placement. Instead they have a single measure placement approach with a multiple measures appeals process, which is not in alignment with the law.

Although assessment processes are most commonly employed to place students in appropriate English, mathematics, or English as a Second Language (ESL) courses, a college may have assessment processes for other sequential courses in the curriculum (e.g., Chemistry). Since Title 5 §55502(i) indicates that multiple measures are a required component of a college’s or district’s assessment system, colleges must also implement multiple measures of assessment for any subject in which they have a placement process, and these measures should be determined using data that provide knowledge about each measure’s usefulness and accuracy.

REGULATORY DISCUSSION ON ASSESSMENT TESTS

Of the set of possible multiple measures, Title 5 places the most stringent guidelines on assessment tests for placement. Using guidelines prepared by the Chancellor’s Office, districts and colleges must validate all assessment for placement tests to ensure that the tests are being used in a proper manner and that the tests show little or no cultural or linguistic bias (Title 5 §55522(a)(1)). In general, with minor exceptions, the following mandates and restrictions apply to all such tests:

- Assessment test procedures must be clearly communicated to students, including the availability of sample tests, how assessment test results will inform placement decisions, and any limits that the college or district places on retakes of the assessment test. [§55522(b)]
- Assessment tests must be approved by the Chancellor’s Office. [§55522(c)(1)]
- Assessment tests may not be used in a manner or for a purpose other than that for which it was developed or otherwise validated. [§55522(c)(2)]
- Assessment tests may not be used to deny admission to a college. [§55522(c)(3)]
- Assessment tests may not be used to exclude students from any particular course or educational program, except that districts may establish appropriate prerequisites. [§55522(c)(4)]

Although Title 5 contains no other specific guidelines about reviewing and evaluating other assessment measures, Title 5§55522(c)(5) includes a blanket prohibition that no “Student Success and Support Program practice which has the effect of subjecting any person to unlawful discrimination” is permitted. Any assessment test that contains culturally or otherwise biased content or language is therefore in violation of state regulation. The Chancellor’s Office Assessment Workgroup, which reviews and approves all locally developed or proposed assessment instruments, focuses on ensuring that the instruments do not reflect any discrimination or bias. However, colleges and districts should scrutinize their assessment for placement processes locally to guarantee the absence of prejudicial language and content, not only to comply with Title 5 but simply as good practice for the sake of students. Furthermore, the application of multiple measures should be reviewed for any potential bias. Bias is not intuitive and is only evident when placement results are examined using data that are disaggregated, and even that examination may not be sufficient to identify bias. If, for example, a high school experience that is only available to certain populations of students weighted heavily in the placement process, this practice should be reviewed for potential adverse impacts.

THE CASE FOR MULTIPLE MEASURES

Limiting assessment to a placement test, an exam with content and skills questions from several courses in a curricular sequence, represents a single and potentially unsuitable measure of student preparation for college coursework. Likewise, assessment of foundational skills such as writing, reading, and computation, may be problematic if limited to measures such as transcript evaluation, employment history, interviews, and attitude surveys because, among other factors, students may have returned to college after a long break or because such measures involve a level of self-reporting that, unintentionally or not, may not accurately reflect students’ preparation.

The drawbacks of relying exclusively on a single, high-stakes exam or test for placement decisions are well known. Many have noted that since the placement tests themselves are fairly brief, they are not able to delve deeply enough into the assessed subjects to provide a more complete assessment picture. Another problem with placement tests is that even the best students may do poorly taking an exam on content they may not have engaged with for months or even years. Poor scores for these students lead to the problem of underplacement, the placement of students in courses considerably below their true knowledge and skill level. On the other end of the spectrum, since many placement exams rely on multiple choice items, students

who are strategic about guessing and eliminating wrong answers may achieve high scores without having a solid grasp of a subject’s underlying principles. High scores for such students may lead to overplacement, the placement of students in courses beyond their skill set and, consequently, in which students are unlikely to succeed.

Research suggests that one reason to use multiple measures is to increase the predictive ability of the placement process. In other words, applying multiple measures can increase the accuracy of the placement process over a single placement test. Findings from a recent predictive model study regarding the use of multiple measures that examined placements and success rates for 42,000 first-time entrants to a large urban community college system suggest that the use of multiple measures when determining student placements lower the number of students that need remediation (up to 12%) by placing them in the correct courses and at the same time increase the success of these students in the courses that they were placed (Scott-Clayton, 2012). Scott-Clayton (2012) also notes that the benefits of using multiple measures rather than relying on assessment tests alone are particularly strong for English placements because the use of assessment tests alone seems to be more accurate for math placements than for English. The study also reported that an estimated 25-33% of students are incorrectly over or under assessed when additional measures are not included in the placement process. Other studies have reported similar problems with assessments.

Clayton, Crosta, and Belfield (2012) note that “roughly one in four test-takers in math and one in three test-takers in English are severely mis-assigned, with severe under-placements in remediation much more common than severe over-placements in college-level coursework” (p. 4).

If misplacement claims made by Scott-Clayton, Crosta, and Belfield (2012) and others are accurate, the consequences for community colleges that fail to include high quality, validated multiple measures in the placement process are significant. In places like California, which has 112 community colleges across the state, an incredibly large number of placement tests are given in a single year, so research suggests that the number of misplacements is likely to be quite high. The following placement test data from Fall 2010 offers a sense of the potential magnitude of the problem:

Subject	Number of Placement Tests Given
Math	350,129
English-Writing	319,892
English-Reading	282,936
ESL-writing	20,925
ESL-reading	21,560
ESL-intergrated	31,297

While this chart does not indicate how much misplacement occurred in each category, research suggests the number of misplacements may have been sizable. The large number of total placements in California

suggests that error rates of 25-33% impact a considerably large number of students. For this reason, we must be more critical of the accuracy of our colleges' assessment data and more curious about how our community colleges use high quality, validated multiple measures in their assessment processes.

Inaccurate assessments resulting from the use of placement tests without multiple measures may contribute to poor persistence and success rates of basic skills students. We know that students enrolled in basic skills courses often do not move through English and mathematics basic skills sequences and complete transfer level courses in high numbers. In English, for example, of those who assessed at below transfer level, "the largest proportion assessed at two levels below transfer level, and about 38% of this proportion succeeded in completing transfer level English," and in mathematics, "of those who assessed at below transfer level in mathematics, the largest proportion assessed at three levels below transfer level, and 14% of this proportion succeeded in completing transfer-level mathematics" (Skinner, 2012). If 25-33% of students who assess are misplaced, then the misplacements may be impacting students' ability to pass courses, learn skills, and persist in high numbers.

Since the use of placement tests in isolation may result in students being inaccurately placed into remediation when they were prepared for college-level work, more accurate placements may also result in various direct benefits for these more prepared students. Scott-Clayton, Crosta, & Belfield (2012) noted that

prepared students who are assigned to remediation may garner little or no educational benefit, but incur additional tuition and time costs and may be discouraged from or delayed in their degree plans. Indeed, several studies using regression-discontinuity (RD) analysis to compare students just above and just below remedial test score cutoffs have generally found null to negative impacts of remediation for these 'marginal' students. (p. 2)

While the utility of remediation is a complex subject that may produce various perspectives and conclusions, certainly no student who truly has no need of remediation should be required to complete unnecessary instruction, and the use of multiple measures may help to reduce the number of students placed into this situation.

Another reason that correct placement is essential is that remediation is expensive, both in terms of fiscal costs and the time it takes students to complete their degrees. The fiscal cost of remediation has been estimated to be nearly \$7 billion dollars per year in the United States (Scott-Clayton, Crosta, & Belfield, 2012). Many other costs related to the impact of remediation on students are not included in this estimate.

A final important reason to use multiple measures in the placement process is that colleges may use the improved assessment data to create better planning processes. By improving the accuracy of placement process, colleges can collect better data and use that data to impact other important processes from scheduling to educational planning. Colleges often struggle to determine how many sections of a particular course should be offered at each level of a curricular sequence, for example. More accurate assessment data may be one of the keys to improving these planning processes, and the inclusion of multiple measures in our assessment processes is an important step toward the goal of improving the accuracy of assessments.

PROS AND CONS OF INDIVIDUAL ASSESSMENT MEASURES

The following table looks at a collection of pros and cons of some commonly used multiple measures. A complete chart is found in Appendix B.

Measure	Pros	Cons	Additional notes
Assessment using a standardized test			
Placement tests	Standardized and comparable among students that have taken the test.	A single high stakes test may not reflect all the student's skills and abilities and may introduce testing bias.	Requires cut score validation.
Standardized California Standards test			Accuracy may vary with test used.
Early Assessment Program Test (EAP)			Alignment with curriculum may affect content validity.
Prior academic achievement			
GPA (self-reported)	Provides an aggregate measure of student achievement and motivation.	Concerns exists regarding accuracy or validity of grades and course work, especially when self-reported.	May be affected by the recency with which the skills or knowledge were acquired.
Transcripts			Not comparable across a large population of students from different schools.
AP – Advance Placement course completion or test scores			
Highest level course success			
Demographics and socioeconomic status			
Age	Evidence suggests that full-time status results in better success than part-time status.	Specific evidence in this area may not take into consideration other factors regarding full-time vs. part-time such as the economic or family conditions that allow full-time enrollment.	Data are inconsistent here, at times showing better success in younger age groups and other times in older students.
Full-time/ part-time status			Direct correlations are currently not objectively measurable.
Number of hours employed			
First generation status (highest level of parental education)			Inequitable treatment of students inevitable.
Socioeconomic status (federal Pell Grant or Board of Governor's Fee Waiver recipient)			
Affective measures			
Motivation (self-reported)	Assessment of motivation level.	Self-reported information is very subjective.	Accuracy issues arise in the selection, recording, and changing of a major.
Declaration of a major			
Other measureable factors that contribute to academic success			
Student education plans developed in 8th grade or high school that continue through college (called "programs of study" in some districts) representing evidence of motivation	Data has correlated these activities with success.	These variables are broad and depend upon rigor, content, and alignment with student goals.	The value of this data may vary with the college.
Employment history			

RELATIONSHIP BETWEEN MULTIPLE MEASURES, PREREQUISITES, AND ASSESSMENT FOR PLACEMENT

One way in which multiple measures may be used is to verify attainment of skills and knowledge expected in a prerequisite. As a condition of enrollment, a prerequisite is intended to specifically identify the skills or body of knowledge a student must have in order to be successful in the target course, and “the determination of whether a student meets a prerequisite shall be based on successful completion of an appropriate course or on an assessment using multiple measures” (§55003). Further, the ASCCC asserts that “students are placed into courses based on their success in prerequisite courses or an assessment process that involves the use of standardized tests in conjunction with other measures likely to effect the student’s performance (ASCCC, 2011). In other words, all placement decisions require the use of multiple measures.

Although prerequisites have long been a useful tool with which faculty can increase the likelihood of student success in their courses, recent events have brought a renewed sense of importance and interest in their use. Notably, the final recommendations from the Student Success Task Force (2011) include Recommendation 3.3, incentivizing students to “begin addressing basic skills deficiencies in the first year.” Data from Bakersfield College (2013) support the fact that students who take their remedial courses in the first term are more successful in all subsequent courses.

Multiple Measures should contribute to the success of placement, especially in prerequisite courses. However, placing prerequisites on courses does not guarantee the successful of completion of target course unless the curriculum is aligned.

MAKING PLACEMENT DECISIONS WITH MULTIPLE MEASURES

All measures used for placement should be scrutinized and adopted based on available data rather than ease and portability alone. One way to address this issue is to have each college create a process to validate all measures, not just standardized assessments. However, some colleges may not be readily able to provide logistical regression or statistical models for their own student populations. For this reason, to some extent a statewide examination of these individual measures and their reliability should be conducted and made accessible to individual colleges. However, recognition of the unique curriculum alignment factors and local populations places a heavy responsibility on the local colleges to review and use the data appropriately.

Locally, colleges, in consultation with their academic senates, should have written processes for validation and placement that involve discipline-specific faculty and student affairs areas. Discussions should, at a minimum, include content of courses, level of rigor, and college-level skill requirements such as writing, research, expectations, and hours of work outside of class. The process should include built-in mechanisms to collect data relevant to placement and success. This work usually requires the involvement of a researcher who is part of the discussions from the early stages of development.

MULTIPLE MEASURES IN CONJUNCTION WITH A COMMON ASSESSMENT TEST

In recent years, many individuals and interested groups have called for placement results that are portable among the colleges. The Board of Governors of the California Community Colleges has asserted the value of portable placement results, and Recommendation 2.1 of the Student Success Task Force (2011) stated that

“Community colleges will develop and implement a common centralized assessment for English reading and writing, mathematics, and ESL.” (p. 25) A common assessment and individualized cut scores can to some extent facilitate the goal of establishing portable placement results, but the integration of such a common instrument with multiple measures is a challenge. One goal of this paper and the ongoing research is to explore a multiple measures approach that is both portable and accurate.

A system of portable placement decisions could benefit the students and the state in various ways. Currently, each California community college selects and implements its own placement system. While certain popular instruments may be common to multiple districts, great variety still exists. Moreover, even if districts share a particular assessment instrument, they may not accept each other’s placement decisions: each district may interpret and apply test results differently and may use different multiple measures to make placement decisions. Students, therefore, are often forced to re-test and are assigned a new placement result when they move among colleges. A system of portable placement would benefit students and create greater consistency by eliminating the need for retesting and re-placement at each college. Such a system would be especially useful to the many students who take courses at more than one college and might enable easier student movement among community colleges. In addition, community colleges and the state would experience cost savings if the number of assessment tests taken could be reduced by making placement portable and minimizing or eliminating the need for retesting.

California already has some tools in place which may help to facilitate the creation of a system of portable placement results. Work on developing a common assessment instrument is already underway. Curricular comparability through use of the CB 21 rubrics and the Course Identification Numbering System (C-ID) system may also allow for or encourage a more universal placement system. However, the application of multiple measures must also be a part of any discussion that hopes to achieve portable placement results.

Agreement on the use of multiple measures in portable placement results for the California community college system could take various forms. One possibility is that colleges would reach concurrence on a consistent system of multiple measures that all institutions would accept. Such discussions might best begin regionally, as colleges in a given area might compare the measures they are using and find that they are applying different processes that achieve the same or similar results. In the absence of statewide consensus and portability, the creation of regional agreements could provide significant benefit to students, as many students who move among various colleges would be most likely to do so within a given geographic area, and institutions would still experience specific cost savings through a reduction of re-testing. Such regional agreements might also, over time, lead to broader discussions that create state-level portability.

Alternatively, colleges might develop their own applications of the common placement instrument and of multiple measures and then agree to accept and trust the results of other institutions. In such an instance, the use of multiple measures may help community colleges to tailor the common assessment instrument to meet local needs. Local community colleges could control the use of validated local multiple measures that they determine are relevant for student placement in their communities. If colleges agree to honor the placement results that student bring from other institutions, then a system of portable placement would result without requiring specific agreement on the application of the assessment instrument or of multiple measures.

However, the concept of portable placement does raise issues for many within the California community college system. Certainly colleges within the system strive toward comparability in curriculum and standards through such projects as the CB 21 rubrics, the C-ID system, and the Transfer Model Curricula for the Associate Degrees for Transfer. Nevertheless, with 112 institutions and nearly 2 ½ million students spread out across more than 150,000 square miles, each district and even colleges within a district have their own unique populations to serve and issues to address. Portable placement is challenging when one considers the diversity of course offerings for unique student populations and innovations for student course completion. Based on such factors as compressed calendars, accelerated coursework, and different instructional modalities, individual multiple measures may take on different meaning even within a given discipline.

Given the wide variety of communities and cultures found throughout the state, the concept of local control over decision-making is a fundamental value to many within the community college system. Any discussion of common assessment or portable placement must be weighed against the importance of local control and should strive to respect this concept to the greatest extent reasonable while still serving the needs of both students and the state as a whole.

COLLABORATION IN THE LOCAL DETERMINATION OF MULTIPLE MEASURES AND PLACEMENT PROCESSES.

Whereas the regulatory framework of Title 5 provides colleges and districts with information regarding what is required and prohibited with respect to multiple measures assessment, it does not give guidance to colleges and districts on what measures to use or how to interpret individual or aggregated measurements. The professional judgment of discipline experts and counseling faculty is necessary to fashion a multiple measures assessment process that maximizes students' likelihood of success in the courses in which they are placed.

While research on community college placement processes supports the use of multiple measures, integrating multiple measures into placement processes is not without costs and challenges. Multiple measures need to be carefully examined and matched to the needs of particular college communities so that local colleges can extend resources and time to validate their measures. Discipline experts and counseling faculty, as well as the local academic senate, need to ensure that the multiple measures selected by their college contribute meaningfully to the placement process. All parties involved with placement of students need to evaluate the ways in which the use of multiple measures fits into existing placement processes and to incorporate a periodic review on the efficacy of the multiple measures.

Academic senates, which have responsibility for making recommendations about academic and professional matters regarding "standards or policies regarding student preparation and success," play an important role facilitating and developing recommendations about multiple measures assessment. The purpose of this section is to provide context and structure for academic senate leaders, discipline experts and counseling faculty as they develop local multiple measures policies and procedures.

As discipline experts, the faculty in the areas being assessed have several roles to play in the assessment for placement process. In developing the college's placement system, discipline experts can determine the skill sets that are needed for success in target courses and with research partners can determine the best use of multiple measures along with cut-off scores for assessment tests. Part of the role of discipline experts is to discuss the result of the validation data and cut-off scores and to ensure that placement decisions result in student success by participating in the evaluation of placement processes. If the college is basing initial placement decisions on information other than an assessment test, such as using students' high school grades, discipline experts should take responsibility for determining how that information is applied for placement. Faculty will need to consider how to best use available, validated data. Content validity is an important aspect of any test such that discipline experts need to review and interpret data. Student behaviors and sophistication are important factors in success, and therefore student affairs professionals should help interpret data. The data alone, produced by a researcher, do not provide the interpretation and application. For this reason, collaboration and review are essential. Discipline experts must be actively involved in discussions to help validate the alignment of the methods and the results of the assessment process to the requirements of the coursework and must not allow the local researcher to make decisions or reach conclusions alone (Lagunoff, Michaels, Morris, & Yeagley, 2012). In addition, the reliability of all measures should be routinely evaluated based on factual outcomes of the placement decisions, including data indicating what students were placed in what courses by what measures and with what rates of success. Consistent and ongoing evaluation of the process and its results is crucial to ensuring the validity and accuracy of the placement system.

In some cases, the primary roles of discipline experts may involve establishing and evaluating the assessment system, while initial individual placement decisions are established by the college's assessment staff based on test results. In other cases, such as placing students based on English faculty reading placement writing samples, discipline experts may themselves determine the initial placement of a student. Regardless of the process and whether their role includes establishment and evaluation of the system or direct involvement in placement decisions, discipline experts should take direct responsibility for the initial placements assigned to students.

Approval of a multiple measures process can include: the weighting for each of the measures based on local research; decision matrices clearly demonstrating the roles of decision makers; discipline experts determining prerequisites; discussions with research, admissions, counseling and discipline experts setting cut scores for assessment tests; and other measures based upon discussions with counseling, discipline experts and research.

Counselors must be involved in the placement process before final placements are determined, not just during the appeals process. As identified in the *Standards of Practice for California Community Colleges Counseling Faculty and Programs* (ASCCC, 2008), "academic counseling services include assessment using multiple measures and diagnosis of students' academic abilities, disabilities, strengths and weaknesses." (p. 4) As a result, counseling faculty are trained to apply those measures and then make placement recommendations based on a combination of assessment results and the institution's use of multiple measures. Counselors need to know how to work with students in exploring information about their past educational experience, college readiness, possible disabilities, and academic skills. These questions become crucial when a student places below transfer-level English and math.

Once initial placement based on discipline experts expertise and multiple measures adjustments by trained counseling faculty have been determined, collaboration between discipline experts and counseling faculty is crucial. A college must work to effectively ensure that the application of multiple measures by counseling faculty is resulting in placement decisions that are comparable to those that would be made by discipline experts and that the use of multiple measures does not result in placements inconsistent with the decisions and standards of discipline experts. While clear guidance can be developed for how to factor in external exam scores into placement decisions, counseling and discipline experts must collaborate to establish a common understanding as to how other measures factor into such determinations and what steps are taken to verify that the placement process is effective. No single system of collaboration will work for all colleges, but each institution must work to create a system in which multiple measures are meaningfully applied, counseling expertise is respected, and the judgment of the discipline experts is utilized.

In compiling the necessary data for both establishing and evaluating an accurate assessment for placement system, college researchers also have a significant role to play. The knowledge and training of researchers can help to ensure that information used in the assessment system is valid, complete, and clear. However, the data alone, produced by a researcher, do not provide the interpretation and application that faculty can provide. Student services professionals and discipline experts must interpret the data, often with guidance from the college researcher, and take responsibility for final decisions regarding the system. The college researcher is an important member of the collaborative effort necessary to create and evaluate the placement system, but the final decisions regarding the system should remain in the hands of faculty experts.

While the use of multiple measures is supported by the research on community college placement processes, integrating multiple measures into placement processes is not without costs and challenges. Multiple measures need to be carefully examined and matched to the needs of particular college communities, so local colleges can extend resources and time to validate their measures. Discipline experts, counseling faculty, and the local academic senate need to be certain that the multiple measures selected by their college contribute meaningfully to the placement process. All parties involved with placement of students need to evaluate the ways in which the use of multiple measures fits into existing placement processes and to build in periodic review of how well the placement process results in student success. There are varying approaches to collaboration regarding assessment and multiple measures and two possible scenarios are presented in Appendix C.

RECOMMENDATIONS FOR LOCAL SENATES

See checklist of recommendations in Appendix D

- Ensure that assessment procedures and the way placement decisions are made are clearly communicated to students. Students should be informed about the entire set of multiple measures that are being used to assess their level of knowledge and skill and how those multiple measures will be analyzed.
- Ensure that multiple measures are applied consistently for all students.
- Collect multiple measures before students complete assessment tests or as part of the assessment test process so that multiple measures are being applied to all students who are assessed, not just those who appeal their assessments.
- Use measures that have a high degree of predictive validity. This may require longitudinal analysis of the predictive value of specific measures within service areas. For example, some communities may find relatively high predictive validity for high school math grades whereas in other communities that measure may be less useful.
- Involve discussions by the local senate and discipline experts at each college.
- Create a local selection of validated measures policy and data.
- Include periodic review of multiple measures assessment policies.
- Provide discipline experts and counseling faculty with information on why certain multiple measures have been selected for use at the college and the role that multiple measures can play in accurate placement.
- Strive to produce an objective process and carefully examine the use of local measures that may be overly subjective, such as interviews.
- Make weighting of multiple measures transparent and research based.
- Consider a regional consortium among the counseling faculty and discipline experts to discuss how assessment outcomes might be portable and accurate.

CONCLUSION

The role of multiple measures is to enable an institution to look at a variety of student characteristics to successfully place each student in the courses best suited to his or her skills and abilities. Multiple measures are clearly mandated, and yet they are a challenge to implement. Institutions must rely upon multiple measures rather than a single test or any other single measure because research has shown that no single measure is fair or adequate to make the complex prediction about a student's success. Data collected on the practices of CCCs demonstrate that no real consistency exists in what measures are used or how multiple measures are implemented at different colleges. Other than the common use of commercial tests, the similarities of multiple measures among the CCCs is very small.

While the necessity to use more than one measure is undeniably supported by Title 5 requirements and by research, the determination of which set of measures to use is much more complicated. The value of the multiple measures vary when they are applied to different courses, diverse colleges, and dissimilar students. Once the multiple measures are decided upon, the application of the measures varies depending upon the policies of the colleges. Some colleges rely wholly upon discipline experts, while other colleges rely more heavily on counselors. Some colleges value objective measures, other colleges see the importance of including subjective measures with objective data, and still other colleges allow student self-placement.

The low success rate in the classes where placement is most controlled should challenge us to sharpen our use of multiple measures and to do more research, to work more collegially, and to make better decisions based upon more data. Because this work is not simple, the task demands collaborative thinking and cooperation between student services and instruction. The significant costs to the student and the institution should lead colleges to pursue better research targeting the viability of multiple measures and to make a commitment to develop policies that evaluate the success of multiple measure placements. Many of these issues are being studied as this paper is being finalized. Prompt follow-up to this paper may be necessary, with more published information describing statewide studies examining the use of high school data and other multiple measures.

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APPENDIX A

Current Commonly Used Multiple Measures Summarized from the CCCCO Survey as Analyzed by WestEd 2011 (N= 59 of 112 colleges)

Tests used for placement and the disciplines they are used for	Percent of respondents using this Total 57 of 59 (85%) colleges used tests
Accuplacer – English, Reading, Writing, ESL	68% (but varies depending on discipline it is used for e.g. only a few use this for ESL)
CELSA – ESL	42%
COMPASS – Math, Reading, Writing and ESL	33%
CTEP – Reading and writing	16%
MDTP – Math	36%
Locally developed multiple choice – Math, Reading, Writing and ESL	14%
Locally developed performance test – Math, Reading, Writing and ESL	16%
Educational Background Information	Percent of respondents using this Total 48 of 59 (81%) colleges used educational background
Length of time out of school	60%
Highest level of educational attainment	64%
High school GPA	79%
General Proficiency in math	44%
Grade in last math class completed	88%
Highest math course completed	90%
Length of time since last math class	79%
General Proficiency in reading and writing	44%
Grade in last English class completed	81%
Highest English course completed	52%
Number of years of high school English	63%

Plans Goals, and Experience	Percent of respondents using this Total 44 of 59 (75%) colleges used educational background
Student's Ed Goals	80%
Student's choice of major	68%
Number of units student plans to enroll in	77%
Highest math course student plans to take	48%
Time of day attending	45%
Students attitude toward studying	55%
Planned hours to study	61%

College Education	Percent of respondents using this Total 44 of 59 (75%) colleges used educational background
College GPA	50%
College units completed	50%
College degree earned (foreign)	55%

Other Characteristics	Percent of respondents using this Total 42 of 59 (71%) colleges used educational background
Age	55%
Veteran Status	60%
Importance of college to student	67%
Importance of college closest to student	55%
Hours employed	67%
time spent in extracurricular activities	36%
Time devoted to family commitments	38%
Perseverance with academic challenge	48%
Time spent reading English	48%
Ease of reading/writing in English	45%

APPENDIX B: COMPLETE TABLE OF MULTIPLE MEASURES

Measure	Pros	Cons	Additional notes
Assessment using a standardized test			
Specific placement tests taken prior placement in college courses in English, reading, ESL or math e.g., Accuplacer, MDTP, CASAS. See California Community College Chancellor's Officer (CCCCO) Approved Assessment Instruments (2013). ¹	Standardized and comparable among students that have taken the test.	A single high stakes test may not reflect all the student's skills and abilities and may introduce testing bias. Accuracy may vary greatly, influenced by curriculum and test content alignment.	Requires cut score validation. Must be approved by CCCCCO. See CCCCCO Approved Assessment Instruments (2013).
California Standards Test (STAR test). This includes the EAP; early assessment program developed by the California State University system for early indicators for high school juniors	Standardized and comparable among students that have taken the test. EAP provides early indicators to allow high school students time to remediate before enrollment in college.	A single high stakes test which may not reflect all the student's abilities.	New testing focused on the common core will not include the EAP. Long Beach City College (LBCC) study indicated little correlation with actual outcomes in LBCC courses.
Prior educational achievement			
Self-reported high school or college GPA	Provides an aggregate measure of student achievement and motivation.	May not be reported accurately.	May be affected by the recency with which the skills or knowledge were acquired and the geographic location of the high school
High school (transcript) College transcript	Provides a documented aggregate measure of student achievement and motivation.	Concerns about high school GPA inflation and significant differences among high school practices.	In a narrow study at LBCC involving one high school district, researchers reported a high correlation with course success based upon high school course grades as the major placement measure outcomes. Some LBCC faculty question these reported results and note that placement through high school grades raised other significant issues that may have negatively impacted instruction.

¹ <http://extranet.cccco.edu/Portals/1/SSSP/Matriculation/Assessment/ApprovedAssessmentInstrumentsFall2013.pdf>

Measure	Pros	Cons	Additional notes
Highest level of math, English or ESL	Provides discipline specific achievement.	Same as above.	May be affected by the recency and the alignment of the high school curriculum with the college curriculum.
Any senior level English and/or math course	English and math courses taken in the senior year of high school, when they are not required, are evidence of motivation.	This measure does not indicate a specific course level, but merely the completion of any a course in math or English.	
Advancement Placement (AP) course completion or AP scores or International Baccalaureate (IB) coursework, or test scores in HS	Provides discipline specific information about motivation and achievement.	Same as above.	Same as above.
Demographics and socioeconomic status			
Age	In some disaggregated data, age is correlated with success or lack of success.	This data are not consistent across ages or among specific discipline success.	Students claiming skills upgrade as their educational goal have very different outcomes by age than the general population.
Units planned	Evidence suggests that full-time status results in better success and part-time status results in poorer success.	Evidence in this area is limited and may not take into consideration other factors regarding full-time vs. part-time performance such as the economic or family conditions that allow full-time enrollment.	Planned units within a specific time frame are not always represented of the actual units completed.
Hours employed	Directly relates to student effort in CCSSE where limited work hours positively influence success.	This measure is self-reported and may therefore raise questions of accuracy. Work hours and times may vary having a positive effect during one period of time and a negative effect at another period of time.	The direct correlations are unknown and may involve many other factors and variables such as the actual hours and days worked or the relationship of work to the courses and content studied.

Measure	Pros	Cons	Additional notes
First Generation status (highest level of parental education)	Provides insight into student support needs but in no way assumes or predicts a student's ability.	Does not directly relate to skills and knowledge. This measure may reflect more on institutional support and outreach than on individual success.	Many data sources indicate when student capability is evident (even measured through diagnostic testing), success is more influenced by support than student performance. CCCs are currently examining more data to understand this variable.
Socioeconomic status (federal Pell grant or Board of Governors Fee Waiver recipient)	Provides insight into student support needs.	Does not directly relate to skills and knowledge.	Complex variable influenced by work hours and family responsibilities, but data indicates lower income students have a more difficult time with completion.
Parenthood or direct family responsibilities	Provides insight into student support needs and student responsibility.	Must be self-reported and may therefore raise questions of accuracy; potential time management issues.	Direct correlations are unclear. Some data in Science, Technology, Engineering, and Mathematics (STEM) indicates single parents have better success rates in career technical courses.
<p>Understanding motivational and maturity factors of students is complex and involves factors that have a potential of encouraging bias. The CCRC paper <i>Do High-Stakes Placement Exams Predict College Success?</i> (Scott-Clayton) asserts, "demographic variables such as gender, age, race, or ethnicity, which may have predictive value but would be unethical to consider in placement decisions." (p. 25) Concerns exist that these socioeconomic factors may result in biased or discriminatory placement. On the other hand, these factors may provide useful prognostic data concerning the student service needs that then result in greater success.</p>			
Affective measures			
Motivation (self-reported)	Provides students' own assessment of motivation level.	Self-reported information is very subjective.	Level of honesty may vary and motivation may vary based on circumstances; may fluctuate during the term.
Declaration of a major	Research indicates this correlates with success.	Declaration of a major is only helpful if it is a committed declaration.	Accuracy issues arise in the selection, recording, and changing of a major.
Other measureable factors that contribute to academic success			

Measure	Pros	Cons	Additional notes
Degrees, classifications or certifications	Completion of a series of study provides an aggregate measure of the student's ability to complete academic goals in the same way a HS diploma provides information relevant to attendance and overall life success.	Not all degrees and certificates provide the same level of information.	Some military training or proprietary schools have a lower degree of rigor or focus on skills without background.
Internships	Internships correlate well with success where content and skills are aligned.	The breadth and depth of the student's abilities are difficult to truly assess in order to place them in a specific course or program.	
Computer skills	Predictor of success.	This factor is commonly referred to as the "digital gap" and may measure socioeconomic status rather than student abilities.	Use of this as a multiple measure may result in bias, preferentially advantaging those with more money and access to personal computers and technology.
Program of study – Student education plan (SEP) that begins in 8th grade or HS and extends through college	Correlated with success.	Depends upon rigor, content, and alignment of the plan with realistic student goals.	SEPs vary widely with regard to quality and investment.
Employment history	Direct knowledge and skills correlation results in great success.	Lack of alignment of employment and course expectations may not correlate or contribute to course success.	May contribute to maturity and better success in many situations not just course taking.

APPENDIX C

The following scenarios show very different local methods of establishing placement processes and illustrate how discipline experts and counseling faculty and researchers can work with the local senate to establish the multiple measures and the process to place students accurately into either prerequisites or target courses.

SCENARIO 1

Discipline experts are actively involved in investigating the role placement plays in student success. Faculty regularly request that cut scores and student success by course be analyzed or researched. Over the last ten years, student success rates have risen significantly in all courses in one particular academic sequence. Discipline experts have difficulty understanding the counselors' role in placement decisions and decide to review the multiple measures process. The discipline experts determine that the best way to make the use of multiple measures more consistent is to include them as part of the assessment test in the form of five additional multiple choice questions meant to assess student motivation and prior achievement. This new assessment practice means that counselors do not collect additional multiple measures after the assessment test is given since the multiple measures are included as part of the assessment for all students. Counselors do not use multiple measures to override assessment test decisions and self-reported measures are worth very few points in the total assessment score and placement process.

SCENARIO 2

Each department that uses a test to place students into courses is asked to generate what they intend their multiple measure process to be. At this point, each department has an entirely separate set of desired measures. Next, the senate works with the counselors and the college committee structure to hold a Multiple Measures Retreat. At this retreat the relevant Title 5 sections are discussed and the intent of multiple measures is presented. At the meeting, the participants determine to create a single survey—called the Student Success Inventory—that can be given prior to assessment and that will address as many multiple measure points as possible. Each assessment test might only use a few questions from the survey, but collectively the survey is both concise and can be used from multiple areas.

The survey is fully vetted by the local Assessment and Matriculation Committee and is approved by the local academic senate. The role of counseling is the subject of much discussion, but ultimately the college leaves the decision to each individual department. Some, such as mathematics, are comfortable with giving counselors considerable latitude to use their professional judgment, but other departments, such as Learning Assistance, desire a specific points-based model that leaves little authority to the individual evaluator.

The scenarios above demonstrate that all colleges have different processes for establishing local processes.

APPENDIX D

Questions to ask to begin your placement process using multiple measures.

- What is your college's placement process?
- Does your college have an assessment and matriculation committee?
- Is your college's placement process based on data?
- Who decides the placement?
- Who communicates the assessment procedures and the way placement decisions are made?
- How do students find out which multiple measures are being used to assess their level of knowledge and skill and how those multiple measures will be analyzed?
- Is your college's process consistent?
- Is it used on all students?
- Do your college's multiple measures have predictive validity?
- Has the college determined the placement decisions results are successful regardless of who makes them?
- Who was involved in deciding which multiple measures are used on your campus?
- Does your college have a local selection of validated measures policy and data?
- Does the college use a periodic review of multiple measures assessment policies?
- Are discipline experts and counseling faculty given information on why certain multiple measures have been selected for use at the colleges?
- Are discipline experts and counseling faculty given information on the role that multiple measures can play in accurate placement?
- Does your college use interviews? If so, has there been a review of the placement decisions and the success values to determine whether or not the interviews improve the process?
- Is your college communicating with the local high schools?
- Have you talked to other local colleges in your area to determine what placement processes they are using?

