



**Achieving the Dream (AtD) In-take Placement Committee
Multiple Measures Sub-committee
Final Recommendations**

In-take Placement Committee – Arnold Ramirez, Chair

Sub-committee - David Preston, Chair

Background

The goals of the AtD initiative include improving the student success in transitional education courses, shortening the average number of semesters that it takes to complete the transitional education sequence, and improving the placement process by placing students more accurately so that a higher percentage of students are successful. In order to accomplish these goals Brazosport College set as a priority the examination and improvement of the course placement process.

The In-take Placement Committee has examined data published by the BC Office of Institutional Research (OIR) and after much discussion, the committee recommended adjustment of several math cut scores and changing specific test results used for placement. The recommendation was approved by the administration and implemented at the beginning of registration for fall 2010. However, from the committee's deliberations and review of the literature, it was determined that there may be other variables that should be considered when determining course placement. The Chair of the In-take Placement Committee then appointed the Multiple Measures Sub-Committee to examine this concern and bring a recommendation back to the full committee.

The Multiple Measures Sub-Committee (MMSC) met 7 times from May, 2010 to March, 2011 with the purpose of researching the different methodologies for using multiple measures; that is, using variables other than placement assessment test scores for placing incoming students into the transitional education (developmental) program or gateway courses. There are several course levels in the math and English program and the current methodology of deciding a student's course placement level is primarily based on the COMPASS score (students are placed in college-level courses with other test results such as TAKS). As stated previously, adjustments were made in COMPASS cut-scores beginning with fall 2010 registration, however, the research shows that placing from test scores alone is not advisable.

The Multiples Measures sub-committee reviewed the data and focused on those students who scored within five points of a cut-off score (borderline students). Some students at the upper end of an interval (within five points of the cut score needed to place in the next higher level course), have been shown in the research to have similar success rates to those have a borderline score and are placed at the next interval. The literature indicates that students within this borderline status may benefit more by being placed in the next higher level course as they are more likely to complete the transitional educational

course sequence if placed in the higher level course than those who are not placed at the next higher level but at an accelerated rate.

Multiple Measures Sub-Committee

The committee researched the use of multiples measures by conducting a literature review, contacting experts, and by working with the OIR to analyze student data. This report and the appendices contain some of the material covered during the meetings. Other material can be obtained by contacting the chair of the committee. All the agendas and minutes can be found at <http://www.brazosport.edu/sites/General/InstitutionalResearch/Achieving%20the%20Dream/Achieving%20the%20Dream.aspx>.

Discussion

From the literature review, contacts, and other discussion with those who have conducted research in this area, a variety of practices and findings emerged. All of this information was investigated and discussed thoroughly by the sub-committee. (A Bibliography of the literature review is attached in Appendix A.)

The one salient conclusion obtained from a review of the literature and research was that the assessment or placement test should be but ONE component used in placing a student into the transitional education program. Further, if a student is on the borderline of the cut score other variables should be considered for use in a placement system to determine placement at the next higher level course.

The last part of the placement equation that this sub-committee centered on, was the question of what variables should be considered when placing students into transitional math courses and College Algebra. Side issues center on the weighting of those variables; that is, how much influence should each of the additional variables receive in the decision to place a student relative to the cut-off score? The sub-committee was in agreement that whatever is used, when applied, reliability and consistency have the highest priority.

The two variables mentioned most often as success predictors in the literature were high school GPA and courses taken in high school (preparation). Traits such as self-efficacy, cognitive ability, family responsibilities, attendance, employment, involvement in school activities, age, and part-time or fulltime attendance were some of the other variables mentioned. All have advantages and disadvantages in terms of the potential for incorporating into a placement system. Ease of use, ease of obtaining necessary data, ease of interpretation, etc. are just some of the challenges in using or not using any or all of the aforementioned variables. The goal is to select the most appropriate and best variables to use as well as those that can be reasonably obtained. Another objective was to ensure that when a variable is used that interpretation is consistent from counselor to counselor. A high inter-rater reliability is an important factor when considering what variables to use.

The Committee considered using a rubric consisting of variables to be used in placing borderline students, and the assignment of points depending upon rankings or values within each of the variables. An example of this is in Appendix B. The variables chosen include the number of math courses when taken in high school, high school GPA, high school rank, and high school attendance. Other factors considered were other test scores and student's maturity. Each of these variables was given a point value based on a ranking, and then the values for each of the variables totaled. Once summed, the total determined whether or not the student could enroll in the next higher level. The major advantage for using a system such as this is that it removes much of the "guessing," makes the process almost totally quantitative, and ensures consistency across counselors. This system was debated thoroughly and the logistics of getting the necessary data for some of the variables made it impossible to use them in the system recommended. An example is that high school transcripts are available electronically from some high schools but BISD and AISD, the school districts where most of BC students come from, do not participate in the electronic transcript program. This would require a student to have a transcript on file at the time of enrollment in order to apply the information to the point system. Using self-reported data is used as an alternative in ascertaining certain information, such as specific high school courses taken. The logistics of implementing a system described in Appendix B were not easily implementable even though the system was one that seemed reasonable and supportable by research.

One other issue that the Committee addressed is that of using diagnostics to determine what specific areas a student needs to strengthen, especially if a student is near a cut-off score. Since Brazosport College has no history of doing this, a pilot was conducted during the fall 2010 semester. The ACT COMPASS assessment is given exclusively to determine a student's placement level in both math and English upon entry. While the placement system is effective for determining course enrollment, little if any information about the student's specific mathematics skills is generated. The COMPASS diagnostic tests, already present in Brazosport College's testing system, will detail how strong a student is in specific content areas. It was recommended that a pilot be done in the fall of 2010 to determine the viability of using diagnostics and work out the logistics of using the diagnostic scores. The detailed data are summarized as follows:

- 191 students were included in the pilot.
- Of these students, 46 were administered a diagnostics package (within 5 points of a placement test cut score). 27 students were routed into the Numerical Skills package and 19 were routed into the Beginning Algebra package.
- The average added testing time was 32 minutes (27 minutes for Numerical Skills ($\sigma = 15$) and 39 minutes for Beginning Algebra ($\sigma = 20$).
- 24% of the sampled students fell within 5 points of a placement cut score (above or below)
- 21% of the sampled students tested within 5 points below a cut score.

Because using the diagnostics did not add a significant amount of time to a student's session, the low percentage of those who would be directed into the diagnostics, the low cost to the college for the

college, and the low risk/high benefits made the recommendation or requiring diagnostics a viable option and the math department recommended that those sub-scores be used to assist in helping with the placement of students in the future (the full report regarding the pilot can be obtained from the chair of the committee or the chair of the math department). Minimally, a student can be directed to resources currently available, depending on the diagnostics, as a review and then allowed to re-take the assessment.

Recommendation

The sub-committee recommended to the full In-take Placement Committee that for the student whose score is within 5 points of the cutoff score (upper end of the interval) that the student's high school GPA and course-taking behavior be considered in the placement recommendation. If high school rank can be obtained, that variable could also be used as a proxy for GPA. The student, of course, can opt to enroll in the lower-level course, but to enroll into the next higher level course, the student must have a counselor recommendation based not only on the placement score, but also the value placed on the two other variables listed (high school GPA and course-taking behavior). The implementation of this recommendation is not dependent on access to the student's high school transcript because the data can be self-reported.

There are three other variables that will be used by the counselors to determine whether or not a student who is within a decision zone (within 5 points below the cutoff score): they are, the student's life experiences, variables established by a psychometrically **established** inventory, and whether or not the student has completed the Learning Frameworks course. Attached is a copy of the recommendation form a counselor would use to complete for a student who has scored within 5 points below the cutoff score. This form would be completed by the counselor, and, as indicated, each variable would be assigned a value that, when totaled, would determine if a student can move to the next level of math, as explained on the form.

The Inventory and Life Experience Scales are two instruments that will be approved by the appropriate Brazosport College **staff** at a later date and the logistics of reporting and including those scale scores in a timely fashion will also be determined at a later time. Because of the extensive discussion that can occur with these topics, it would not be appropriate to insert the dozens of theories for motivation/self-efficacy in this recommendation. We do know that there are reliable inventories that can be used for this purpose both for life experiences and the psychometrics in which we have included (motivation and self-efficacy).

This recommendation is carried to the full committee for its approval so that it can be submitted to the Dean, Educational Programs, and Services.

June 20, 2011

Appendix A

Bibliography

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Appendix B

In the research that the sub-committee did, the following are some of the factors that could be included in placing students:

1. From the High School Transcript, the following:
 - a. Using the high school transcript could assist in the decision as to whether or not a student is placed into a higher transitional education course than a placement score indicates. The number of high school units taken (e.g., four years of math vs. three years of math, *etc.*), the grades attained in high school math and/or English courses, the overall high school GPA, and attendance record could all be inputs into the decision to place the student into a higher transitional education course than the placement score indicates.
 - b. Class rank could be used, but only by quartiles or deciles but this variable would be a proxy for grades or GPA as rank would correlate very highly with grades and GPA.
2. Other test scores such as ACT, SAT, etc. if available
3. Student's maturity as determined by his/her age, experience, etc. This will have to be determined through the interview process and/or an inventory (paper and pencil or maybe online).
4. Student's motivation, self-efficacy, and other factors making up his/her life experiences are could be used when placing borderline students into transitional education courses or college algebra.

Once there is a decision concerning whether or not diagnostics are used in the placement conclusion and how they will be used, these procedures will have to be reviewed and modified to reflect the infusion of using diagnostics in the placement protocol.

A major reason that the sub-committee reduced the number of variables to be used from a high school transcript is the difficulty in obtaining a transcript in a timely manner. Local area school districts do not have, for the most part, the technology to electronically deliver a student's transcript to Brazosport College.

**Counselor's Recommendation for Math Placement
(For students who's scores fall in the decision zone)**

Student's Name _____ Student ID _____

Factor			Points
High School Transcript			
Units taken (math)			
Courses with C or better	Points for Regular Course	Points for Advanced/PreAP Course	
Algebra 2	+1	+2	
Precalculus	+2	+3	
Math Models	+1	n/a	
Senior Math	+1	n/a	
Statistics	n/a	+3	
Calculus	n/a	+5	
Overall GPA (4 point scale) 3 and above = 5 points Below 3 = 3 points			
Student's Life Experience Scale (SLES) Total number of points = 10			
Psychometrically Established Personal Inventory (Self-Efficacy Motivation)			
Total number of points = 10			
Successfully Completed Learning Frameworks 5 Points			
Total			

60%

40%

If the total number of points is more than 15, then the counselor may enroll the student in the higher transitional education course.

Course indicated by placement score _____

Course recommended by counselor _____

Signature of student (agrees to assignment) _____

Signature of counselor _____

Incoming Student Placement

