

AGENDA ITEM SUMMARY

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Report on Best Practices in Remedial Education
Coordinating Board for Higher Education
February 2, 2017

DESCRIPTION

This agenda item summarizes the findings of the first annual *Report on Best Practices in Remedial Education*. This report is the first of its kind following the implementation of HB 1042 and the development of the *Principles of Best Practice in Remedial Education*.

Background

HB 1042 requires all public institutions of higher education to “replicate best practices in remediation.” In 2013, the CBHE approved the *Principles of Best Practice in Remedial Education* to guide compliance with HB 1042’s mandate.

MDHE staff used a comprehensive survey and available data on remedial education to compile this report. The department has collected data on remedial education for many years, but the quality of the data—due primarily to the absence of a clear definition of “remediation”—has been less than optimal. Additionally, MDHE staff worked with members of the Committee on College and Career Readiness (CCCR) to develop a comprehensive, mixed-method survey to obtain both qualitative and quantitative data about the delivery and quality of remedial education. The department will administer this survey (with modifications as necessary) annually to assess the effectiveness of efforts to reduce the need for remedial education and improve degree completion.

The survey included questions related directly to the best practices identified in *Principles of Best Practice in Remedial Education*, including the types of supplemental support and intervention strategies institutions offer students, whether institutions offer alternative remedial education models, and institution placement practices. A copy of the survey template and instructions are available in the appendix of the *Report on Best Practices in Remedial Education*.

Staff distributed an 11-question qualitative survey in October 2015 to all 27 public institutions; all institutions (100 percent) completed and returned the survey. In September, a draft of this report was sent to the chief academic officer of each institution for review and comment, and to assure accuracy of data and other information. MDHE staff revised the draft based on this feedback.

Summary of Findings

The data suggest that Missouri is transforming remedial education. Between 2011 and 2015, the state’s overall rate of remediation decreased from 35.5 percent to 28.2 percent. The 20 percent decrease in the overall rate is significant and encouraging, but should not be overstated. It is likely the result of several factors, including the addition of a fourth year of mathematics to the CBHE Recommended College Preparatory High School Core Curriculum, efforts by the state’s colleges and universities to adopt alternative models of delivering remedial education, and a consistent definition of “remediation.” The last point is significant. Prior to 2012, several

institutions did not report any students in remedial education, not because they didn't offer it but because of how they defined "remediation." Establishing a shared definition of remediation has improved data quality and has resulted in greater accuracy in the reporting of remedial enrollment.

All 27 public institutions completed the survey, and all but two (Missouri University of Science & Technology and Truman State University) offer remedial education. All of the 25 institutions providing remedial education offer additional academic support to students taking remedial courses, such as tutoring, mentoring, labs, workshops, and additional advising. All institutions offer early intervention strategies to help students avoid remediation. All but one institution offer an alternative to the traditional remedial education model.

On balance, Missouri public institutions of higher education are making good faith efforts to replicate best practices in remedial education as required by statute. There are, however, several exceptions. Of the best practices identified in the *Principles of Best Practice in Remedial Education*, two—using "multiple measures" to place students in appropriate courses and defining "college content readiness" consistently—are of particular importance for improving the condition of college readiness in Missouri.

The survey revealed that all institutions use a standardized assessment to place students in remedial or credit-bearing courses. Southeast Missouri State University uses the ACT subscores in mathematics and English for placement. It follows the statewide placement score for mathematics placement but uses a score of 22 (rather than the statewide score of 18) for English placement. The University of Missouri-Columbia, the University of Missouri-Kansas City, and the University of Missouri-St. Louis all use an assessment called ALEKS, for which a statewide score has not been established.

Thirteen institutions (52 percent) use multiple measures to place students in credit-bearing or remedial coursework, and five more (20 percent) are currently implementing or planning to implement the use of multiple measures on their campus. Seven institutions (28 percent) are not using multiple measures when placing students in credit-bearing or remedial coursework.

What other tools or multiple measures does your institution utilize (possibly in conjunction with placement tests) to determine the placement of students in remedial education courses?	
Institution	Response provided on survey
Missouri Western State University	<i>No response provided</i>
North Central Missouri College	<i>None</i>
Southeast Missouri State University	<i>No response provided</i>
Three Rivers College	<i>No response provided</i>
University of Missouri-Columbia	<i>None</i>
University of Missouri-Kansas City	<i>None</i>
University of Missouri-St. Louis	<i>None</i>

Relying on a single, high-stakes standardized assessment—where a "cut score" determines if students are placed in credit-bearing or remedial courses—is an efficient placement tool, but wholly ineffective in assessing students' readiness for a particular course. National and

institutional data have shown that students whose score on a standardized assessment is a few points below the cut score succeed at nearly the same rate as those at the cut score. In other words, many students placed in a remedial course could be successful in a credit-bearing course if given the opportunity.

Similarly, defining “college content readiness” consistently across all institutions conveys to high school students (and their parents) a uniform message about college readiness and expectations. This is accomplished through shared, written definitions but, perhaps of greater importance, consistent practices such as the use of statewide placement scores.

Conclusion

Efforts to transform remedial education in Missouri appear to be bearing fruit. The rate of remediation has declined since 2011, and institutions are adopting more effective means of helping students succeed. The work of both the Missouri Math Pathways Task Force and the Corequisite at Scale Task Force hold great promise for further improvements. The framework for annual reporting on the condition of college and career readiness is in place.

STATUTORY REFERENCE

Section 173.005.2(6), RSMo – Statutory requirements regarding CBHE’s requirement to identify best practices in remediation and provide oversight of the replication of these best practices by public institutions

RECOMMENDED ACTION

This is an information item only.

ATTACHMENT(S)

Annual Report on Best Practices in Remediation (Abridged)

Annual Report on Best Practices in Remedial Education

Missouri Department of Higher Education
January 2017



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Executive Summary

[HB 1042](#) directed all public institutions of higher education to “replicate best practices in remediation.” MDHE staff and institutional representatives collaborated to identify best practices in remedial education, which were collected in the document [Principles of Best Practice in Remedial Education](#). The following report assesses institutional efforts to replicate best practices in remedial education and the effectiveness of those efforts.

Between 2011 and 2015, the state’s overall rate of remediation decreased from 35.5 percent to 28.2 percent (Table 2). Based on the data collected, MDHE staff concludes that most public institutions are replicating best practices in remedial education. However, there are two key best practices that have not been implemented by all institutions.

1. One institution does not adhere to the statewide placement scores identified in the [Principles of Best Practice in Remedial Education](#)
2. Thirteen institutions do not use multiple measures to place students in credit-bearing or remedial coursework.

These two practices are unquestionably best practices and essential to the state’s efforts to reduce the need for remedial education. The use of a common statewide placement score is essential for conveying to high school students, parents, and counselors a consistent definition of what determines college-level content readiness. The use of multiple measures for placement provides a more precise measurement of a student’s ability to succeed in college-level coursework. Relying on a single, high-stakes assessment results in many students being placed unnecessarily in remedial courses.

Recommendations

- 1. Use common scores and multiple measures to place students in credit-bearing courses.**
All public institutions in Missouri must follow the statewide placement scores as this helps to strengthen a common definition of what higher education deems as college ready.
- 2. Encourage the State Board of Education to adopt the [CBHE Recommended College Preparatory High School Core Curriculum](#)**
The CBHE revised its Recommended College Preparatory High School Core Curriculum to increase the required mathematics units from three to four, and to emphasize the importance of taking a math course in grade 12. Research strongly suggests that students who follow this curriculum succeed in postsecondary education at much higher rates than those who do not.
- 3. Adopt accelerated remedial education models as soon as possible.**
All institutions should be encouraged to adopt—as soon as is feasible—accelerated remedial education models that will allow many more students to progress into college-level gateway courses as quickly as possible.
- 4. Develop and implement early intervention strategies.**
These partnerships are important as they allow institutions to communicate with students about remedial education and college readiness, as well as further provide both the high school and institutions the ability to offer the appropriate support to students in order to significantly reduce or even eliminate students’ needs for remedial education.
- 5. Develop and implement threshold policies and practices.**
While many students need only to brush-up in a single subject, there are others who may be severely underprepared and have little chance of earning a postsecondary degree in a timely manner. It is unreasonable to expect a student who has limited academic preparation to have success in college even with cutting-edge remedial coursework. It is equally unreasonable to expect an institution to close the gap in a student’s academic preparation through a one- or two-semester remediation sequence.

Background

[HB 1042](#), which became law in 2012, directed all public institutions of higher education to “replicate best practices in remediation,” with the intent of improving student retention and degree completion. To implement this section of HB 1042, institutional representatives and Missouri Department of Higher Education collaborated to develop [Principles of Best Practice in Remedial Education](#), which the Coordinating Board for Higher Education approved in September 2013. The best practices identified in the [Principles](#) are based on research conducted and published by regional educational laboratories, higher education research organizations, and similar organizations with expertise in the subject. The *Report on Best Practices in Remedial Education*, which will be published annually, assesses institutional efforts to replicate best practices in remedial education and the effectiveness of those efforts. This is the first *Annual Report on the Condition of College and Career Readiness* following the implementation of most of the best practices identified in the [Principles of Best Practice in Remedial Education](#).

One best practice is the responsibility for on-going evaluation and continuous improvement in the delivery of developmental education. For best practices to be effective, they must be assessed regularly. To that end, the MDHE will administer an annual survey to gather student success data in remedial and college-level gateway coursework and to assess remedial education policies and practices. This survey not only will allow us to assure institutional compliance with the *Best Practices* policy, but will enable us to evaluate innovative strategies institutions are making to their remedial education programs and share best practices.

Survey Methodology

For this report, MDHE staff worked with members of the Committee on College and Career Readiness (CCCR) to develop a comprehensive, mixed-method survey to obtain both qualitative and quantitative data on the condition of postsecondary readiness. The survey included questions related directly to the best practices identified in [Principles of Best Practice in Remedial Education](#), including the types of supplemental support and intervention strategies institutions offer students, whether institutions offer alternative remedial education models, and institution placement practices. A copy of the survey template and instructions are available at <http://dhe.mo.gov/data/datasurveys.php>

The data component of the survey, developed in collaboration with two- and four-year institutions, was designed to measure enrollment in, and the relative effectiveness of, of several methods of instructional support. The data included students who were:

- Enrolled in a Semester-Long Remedial Course
- Enrolled in a Semester-Long Corequisite Course
- Enrolled in a Short-Term Defined-Length Remedial Course
- Enrolled in a Short-Term Defined-Length Corequisite Course
- Enrolled in a Self-Paced Remedial Course
- Enrolled in a Self-Paced Corequisite Course
- Enrolled in a Boot Camp / Workshop
- Other (Student Received Formal Instructional Support Other Than Described Above)

Institutions were asked to report the total number of first-time undergraduates (including transfers) enrolled in fall 2013, as well as the total number enrolled in each included method of instructional support. Reporting was requested by full- and part-time enrollment. Institutions were then asked to report the number of students enrolled in and completing each method of instructional support in math only, writing only, reading only, math and writing, and reading and writing. Institutions were also asked to report the number of students enrolled in and completing by spring 2015 a relevant college-level course in math, writing, reading, math and writing, and reading and writing.

The current data survey tracks the fall 2013 cohort in order to give time (two years) to track success into college-level coursework, so a small number (if any) enrollments in corequisite coursework, boot camps, and other alternative methods of instructional support were expected. MDHE staff will continue to work with the institutions to ensure survey structure is representative of enrollment patterns across content areas. The department also will continue to monitor the relative effectiveness of other models of instructional support as they grow in 2014 and beyond in response to statewide and national emphasis.

The MDHE distributed both the 11-question qualitative survey and the data survey in October 2015 to all 27 public institutions. Twenty-seven institutions (100 percent) completed and returned the survey (Table 1). The results of the qualitative survey are summarized below; full results for each institution are included in the appendix. Quantitative data have been summarized from the inaugural surveys and are available by institution and sector, and is available

online: http://dhe.mo.gov/data/documents/fall_2015_remedial_survey_data_summary.xlsx

A draft report was prepared by MDHE staff, reviewed and revised by the CCCR, and distributed to the chief academic officers of each public institution for public review and comment. The chief academic officer had the opportunity to review and revise his or her institutional summary for content and accuracy. MDHE staff made revisions based on this feedback and incorporated them into the final draft for CBHE review and approval.

Summary of Qualitative Survey Responses

Response

All twenty-seven public institutions responded to the 2015 Remedial Education survey, and 25 reported offering remedial education. Missouri University of Science & Technology and Truman State University reported that they do not offer remedial education. Percentages in the tables that follow are therefore calculated using $n=25$.

Table 1: 2015-16 Remedial Education Survey Respondents	
Four-Year Public Institutions offering Remedial Education	Two-Year Public Institutions offering Remedial Education
Harris Stowe State University	Crowder College
Lincoln University	East Central College
Missouri Southern State University	Jefferson College
Missouri State University	Metropolitan Community College
Missouri Western State University	Mineral Area College
Northwest Missouri State University	Missouri State University – West Plains
Southeast Missouri State University	Moberly Area Community College
University of Central Missouri	North Central Missouri College
University of Missouri – Columbia	Ozarks Technical Community College
University of Missouri – Kansas City	St. Charles Community College
University of Missouri – St. Louis	St. Louis Community College
	State Fair Community College
	State Technical College of Missouri
	Three Rivers Community College
Four-Year Public Institutions not offering Remedial Education	Two-Year Public Institutions not offering Remedial Education
Missouri University of Science & Technology	NONE
Truman State University	

Institutions Providing Additional Support or Supplemental Services

Of the 25 institutions that offer remedial education, all reported providing additional supports for students taking remedial education courses. The kinds of supports vary, and include the following:

- Twenty-five institutions (100 percent) offer additional tutoring/mentoring, and all but one offer additional advising.
- Twenty institutions (80 percent) provide labs/workshops.
- Twenty-two institutions (88 percent) offer student success courses.
- Eleven institutions (44 percent) offer supports such as supplemental instruction, student success programs (e.g., bridge programs), self-paced instruction, make-up test accommodations, early alert systems, and student programs to track attendance.

Alternative Remedial Education Models

Twenty-four institutions (96 percent) offer some type of an alternative remedial education model; the University of Missouri-Columbia does not.

Early Intervention Strategies

All institutions offer early intervention strategies to help students avoid remediation.

Assessment and Placement Practices

Statewide Placement Scores

The best practice for placing students into appropriate college-level courses must be based on at least two measures so as to provide a more accurate assessment of a student's ability to succeed in college-level coursework. Institutions may use an array of assessment instruments to place students in college-level courses, including—but not limited to—SAT or ACT scores, high school grade point average, high school end-of-course examination scores, or an institutional created assessment instrument. Institutions using an assessment identified in the [Principles of Best Practice in Remedial Education](#) must also use the statewide placement score listed in the document. All institution using, for example, the ACT subscore in mathematics, must use 22 as the cut score for determining the appropriate mathematics placement for students. (see Section 9.2 in [Principles of Best Practice in Remedial Education](#))

All institutions reported using a standardized assessment to place students in remedial or credit-bearing courses. Twenty-one institutions reported they adhere to the statewide placement scores identified in [Principles of Best Practice in Remedial Education](#).

Three of the four remaining—the University of Missouri-Columbia, the University of Missouri-Kansas City, and the University of Missouri-St. Louis—use an assessment called ALEKS, for which a statewide score has not been established.

Southeast Missouri State follows the statewide placement score for mathematics placement but uses a score of 22 rather than the statewide score of 18 for English placement.

Multiple Measures

Thirteen institutions (52 percent) use, or appear to use, multiple measures to place students in credit-bearing or remedial courses. Many use the ACT subscores in mathematics and English, but high school GPA, other standardized assessment tools (e.g., Accuplacer), and locally-developed writing samples and math examinations are also used. (Table 2)

Several institutions allow students to appeal their placement, which they reported as one of the measures used for placement. It is questionable that providing students the option to appeal their placement is consistent with the intent of using multiple measures for placement. Institutions using this process still rely on a single measure; the second measure kicks in only if a student wishes to challenge the placement and

thus places responsibility wholly on the student rather than the institution. An appeals process has value but should be used only after the institution has used multiple measures to assess students' skills and abilities.

Table 2: Institutions using multiple measures for placement	
Institution	Summary of Measures Used
Crowder College	<ul style="list-style-type: none"> • ACT, SAT, HSE, Accuplacer, Compass, and Wonderlic • High School GPA
East Central College	<ul style="list-style-type: none"> • Writing sample for placement in composition coursework for students in certain ranges. • Nelson Denny as an alternative option for measuring reading skills. • Institutional end of course exams as an optional measure in mathematics placement.
Harris-Stowe State University	<ul style="list-style-type: none"> • Accuplacer scores • Transcript evaluation • High School GP • Paper test for mathematics prepared by the ARC Director.
Jefferson College	<ul style="list-style-type: none"> • Students notified when placement score's within 5 points of next course level. Students are encouraged to remediate and retest. • Multiple Measures (See full description in Item # 3, above) • ETS Success Navigator. (See full description in Item #3) above.) • If students complete RDG 030 or RDG090 without grade of C or higher, they can re-take the placement test to demonstrate they're reading ready
Missouri Southern State University	<ul style="list-style-type: none"> • Students who do not place in college composition have the option to take a Writing Placement Exam. Based on the essay, students are placed into remedial course or college-level course. • In mathematics, use a placement system developed by the department where students can remediate at their own pace. • Students that pass the proctored exam at the end of the system are not required to take remedial courses. We do use placement tests in conjunction with remediation models.
Moberly Area Community College	<ul style="list-style-type: none"> • In-house appeal options for math and English as a secondary method of placement if students don't place into college-level courses with the ACT/Compass • Placement into College Algebra through a combination of ACT/Compass math score, high school GPA, and date of graduation.
Northwest Missouri State University	<ul style="list-style-type: none"> • High School GPA and additional placement through locally developed Math Placement Assessment. • Students with an ACT English subscore below 18 have opportunity to take a locally-developed writing assessment to test out of the requirement for a developmental writing course.
Ozarks Technical Community College	<ul style="list-style-type: none"> • COMPASS scores taken prior to registration • In Mathematics, a formative computer based assessment (ALEKS) during the first week to double check placement. • In English, a placement essay is used to double check placement. • In the process of developing a guidance instrument is in the process of development as we move toward directed self-placement.
St. Charles Community College	<ul style="list-style-type: none"> • Use only COMPASS Placement • Appeals process whereby a student may retest using COMPASS. • If still not satisfied with their placement a student may bring their high school transcript and any other test scores for an individualized review and placement. • We are in the process as a college of choosing effective multiple measures to use for placement of our students.

State Fair Community College	<ul style="list-style-type: none"> • ACT • High school GPA • Writing assessments
State Technical College of Missouri	<ul style="list-style-type: none"> • Internal placement exams for math and writing • Learning Express for reading
Three Rivers Community College	<ul style="list-style-type: none"> • Students placing into developmental math are given the opportunity to take pretests over different competencies. Results of these pretests then help determine the actual starting placement of students in the courseware. Students placing into developmental English are required to complete a writing prompt that is then evaluated by the full time faculty to determine accurate placement. Based on the results of the evaluation, students can be placed into either a composition course with a co-requisite or directly into a college ready composition course.
University of Central Missouri	<ul style="list-style-type: none"> • ACT • Evaluation of high school GPA • Diagnostic tests administered on the first day of class.

Five institutions are currently piloting, planning to pilot, or implementing the use of multiple measures on their campus.

Table 3: Institutions piloting, planning to pilot, or implementing multiple measures	
Institution	Summary of Response
Mineral Area College	<ul style="list-style-type: none"> • Our Taskforce on Remedial Education conducted extensive research and hopes to make a recommendation to the Assessment Committee to be implemented by fall 2017. • At present, the most likely additional measure will include some consideration of the high school GPA.
Metropolitan Community College	<ul style="list-style-type: none"> • None. • We piloted placement of a limited number of student using HS GPA and ACT. • Due to limited IR staff and problems with the college's information system, this has not been adopted across the institution. • English faculty at three campuses are currently piloting a writing assessment as an additional placement measure.
Missouri State University-West Plains	<ul style="list-style-type: none"> • We are currently revising our placement methods. We will have something in place by the Fall of 2016
North Central Missouri College	<ul style="list-style-type: none"> • We are implementing a new multiple measures for placement process for students admitted for fall 2017. • The ACT/Accuplacer and High School grade point average will be utilized.
St. Louis Community College	<ul style="list-style-type: none"> • On an individual basis, students can complete "challenge" assignments that have the potential to allow them to bypass developmental reading and English courses. • We have a district-wide committee formed to look at adding multiple measures.

Nine institutions (36 percent) do not use multiple measures to place students in credit-bearing or remedial coursework. One institution did not provide a response to the question

Table 4: Institutions that do not use multiple measures for placement	
Institution	Summary of explanation for not using multiple measures
Lincoln University	<ul style="list-style-type: none"> • Lincoln has used the ACT math sub score to place students in math courses since 2014. • Previously, math placement was based on the departmental placement exam. • This has been Lincoln's practice for a long time.

Missouri State University	<ul style="list-style-type: none"> • For writing, ACT English sub-score. <ul style="list-style-type: none"> ○ Previously required an essay during new student orientation; labor intensive and expensive. ○ Analyses indicated that the ACT sub-score was an equally effective approach. • For math, ACT Math sub-score. <ul style="list-style-type: none"> ○ Previously required locally produced placement test during new student orientation. ○ ACT sub-scores proved to be just as effective. • Students have the option, if they are unhappy with their ACT based placement, to take the locally produced placement exam. • Math department is currently looking into McGraw Hill's ALEKS placement scheme.
Missouri Western State University	<ul style="list-style-type: none"> • No response provided
Southeast Missouri State University	<ul style="list-style-type: none"> • For math placement either the ACT Math Sub-Score or the COMPASS exam. • Beginning in January 2017, will use a locally developed Department Math Placement Exam. • For English, ACT English Sub-Score of 22 or an English Department Placement Exam score.
University of Missouri-Columbia	<ul style="list-style-type: none"> • Only ALEKS scores or prior course credit impact math course placement and registration. • Academic advisors use ALEKS scores as well as high school coursework, ACT/SAT scores to corroborate math placement scores. • MU is using ALEKS for the final time this year. By Fall, 2017, a new placement instrument, MyMath Test, will be used to determine the appropriate level of math course. • In turn, the new placement test is being aligned with the redesign of "College Algebra." • Both the multiple scores from the MyMath Test, as well as ACT score and high school course and grade information will also be available to advisers when they work with the student. • By 2019 (or perhaps Fall, 2018), the new College Algebra, a new Quantitative Reasoning course, and a more advanced pre-STEM math class (with a co-requisite) will all be available. At that point, MU will cease having any remedial courses.
University of Missouri-Kansas City	<ul style="list-style-type: none"> • No other
University of Missouri-St. Louis	<ul style="list-style-type: none"> • Currently there are no remedial courses into which students are placed based on placement tests. • Advisors have access to ACT and high school GPA information along with Math Placement scores when assisting students with placement into gateway courses and are encouraged to utilize multiple measures to identify the most appropriate placement.

Minimal Academic Competence

Eight institutions (32 percent) assess students' minimal level of academic competence. Three institutions (12 percent) are currently looking into establishing a threshold or will implement a threshold score within the next year. Eleven institutions (44 percent) have Adult Education Literacy programs on their campuses.

Findings

Overall Remediation Rate

Between 2011 and 2015, the state's overall rate of remediation decreased from 35.5 percent to 28.2 percent (Table 5). The 20 percent decrease in the overall rate is significant, and likely the result of several factors:

1. The Fall 2015 student cohort was the second for which the [CBHE Recommended College Preparatory High School Core Curriculum](#) included a fourth year of mathematics, although it is not clear at this time how many school districts have actually adopted the recommendation.

2. The MDHE and the state's colleges and universities have worked on multiple fronts to reduce enrollment in remediation for students at the higher end of the placement spectrum by moving them into the corequisite and other alternative models of delivery. The state is now working to implement the corequisite model statewide, which should further reduce the remediation rate.
3. The MDHE and the institutions have agreed in recent years on a consistent definition for remedial coursework. Prior to 2012 several institutions did not report any students in remedial education, based on an institution-specific definition. Using a statewide definition has improved data quality and has resulted in greater accuracy in the reporting of remedial enrollment.

	Fall 2011	Fall 2012	Fall 2013	Fall 2014	Fall 2015
Total	35.5%	35.6%	35.6%	30.8%	28.2%
Math	29.9%	30.8%	30.1%	26.2%	23.8%
English	15.4%	14.3%	15.5%	12.3%	10.0%
Reading	10.1%	9.1%	9.7%	7.6%	6.1%

Gateway Course Completion

While decreasing the number of students taking remedial courses is a goal of this work, the real objective is to get more students to complete credit-bearing gateway courses and ultimately earn a certificate or degree. Studies have shown that taking even one remedial education course greatly reduces the likelihood a student will earn a certificate or degree.

Although some data exists for these students prior to 2012, it is sketchy at best. The data presented below establishes a baseline for assessing the effectiveness of new approaches to remediation and student success in gateway courses.

As shown in Table 6, a low percentage of students enrolled in semester-length remedial courses completed a related college-level course within two years (Table 6). At two-year institutions, 34.4 percent of first time students enrolled in a remedial math course completed a college-level math course within two years (fall 2013 to spring 2015). Rates for remedial writing (38.6 percent), reading (37.4 percent), math and writing (20.7 percent), and reading and writing (33.1 percent) also were low. Institutions defined relevant college-level coursework for remedial reading; American government, political science, and composition were suggested in the instructions.

				Students Completing a College-Level Course in the Same Subject by Spring 2015 (of Students Enrolling in Instructional Support)				
	Total First-Time Undergraduates (incl. Transfers), Fall 2013	Total Enrolled in Instructional Support	Pct. Enrolled in Instructional Support	Math	Writing	Reading	Math and Writing	Reading and Writing
Two-Year IHEs	26,133	11,249	43.0%	34.4%	38.6%	37.4%	20.7%	33.1%
Four-Year IHEs	30,167	4,246	14.1%	34.8%	50.0%	18.3%	17.2%	1.5%

Completion rates at four-year institutions were also low – remedial math (34.8 percent), writing (50.0 percent), reading (18.3 percent), math and writing (17.2 percent), and reading and writing (1.5 percent).

Short-term, defined-length, and self-paced remedial courses at two-year institutions were generally less effective than semester-long remedial courses. Only about 23 percent of remedial math-enrolled students (STDL or self-paced) completed a college-level math course within two years.

This baseline data provides evidence that traditional approaches to remedial education have not been effective enough and that alternative models, such as corequisite, should be considered.

We have very limited data on the effectiveness of corequisite remedial education. The baseline cohort (fall 2013) predated a major statewide push to corequisite coursework, when a few students (<100) were enrolled in corequisite programs at two-year institutions. These students were markedly more successful (compared to students in traditional programs) in completing relevant college-level coursework within two years (Table 7). Sixty percent of students who enrolled in a semester-length corequisite writing course completed a college-level writing course by spring 2015. Rates for corequisite reading (70.6 percent), math and writing (60.5 percent), and reading and writing (60.5 percent) similarly were higher than for comparable semester-length remedial courses.

Table 7: Percentage of All Students Enrolled in Corequisite Courses that Completed a Gateway College-Level Course Within Two Years.								
				Students Completing a College-Level Course in the Same Subject by Spring 2015 (of Students Enrolling in Instructional Support)				
	Total First-Time Undergraduates (incl. Transfers), Fall 2013	Total Enrolled in Instructional Support	Pct. Enrolled in Instructional Support	Math	Writing	Reading	Math and Writing	Reading and Writing
Two-Year IHEs	26,133	91	0.3%	n/a	60.0%	70.6%	60.5%	60.5%

A meaningful number of students at two- and four-year institutions were also reported as “placed but not enrolled” in any instructional support, meaning they had tested into or been advised to take a remedial course or other instructional support as listed above, but had instead enrolled directly in college-level coursework (Table 8). These students were less successful than their peers who had enrolled in semester-length remedial courses at two-year institutions in eventually completing relevant college-level coursework. At four-year institutions, they slightly outperformed their remedial peers in completing college-level math, but were more successful in eventually completing relevant college-level writing and reading courses.

Table 8: Percentage of Full-Time Students Placed in Remedial Courses but Who Enrolled Directly in and Completed Gateway College-Level Course Within Two Years.						
				Percent of Full-Time Students Placed But Not Enrolled who Completed a College-Level Course in the Same Subject by Spring 2015 (of Students Enrolling in Instructional Support)		
	Total First-Time Undergraduates (incl. Transfers), Fall 2013	Total Placed by Not Enrolled	Percent Placed by Not Enrolled	Math	Writing	Reading
Two-Year Institutions	18,434	6,660	36.1%			
Placed but not Enrolled in Remedial Mathematics	18,434	3,040	16.5%	31.5%		

Placed but not Enrolled in Remedial Writing	18,434	2,217	12.0%		41.9%	
Placed but not Enrolled in Remedial Reading	18,434	1,403	7.6%			33.3%
Four-Year Institutions	27,432	6,330	23.1%			
Placed but not Enrolled in Remedial Mathematics	27,432	3,170	11.6%	36.9%		
Placed but not Enrolled in Remedial Writing	27,432	1,504	5.5%		57.4%	
Placed but not Enrolled in Remedial Reading	27,432	1,656	6.0%			72.0%

A small number of students ($n < 50$) were enrolled in “boot camps” or other short-term non-credit workshops at two-year institutions. It would be premature to draw definite conclusions on their effectiveness based on such a small cohort, but it would appear they are less successful than their remedial peers in eventually completing a college-level math class (28.6 percent vs. 34.4 percent), but more successful in writing (50.0 vs. 38.6 percent) and reading and writing (40 vs. 33.1 percent).

Institutional Adoption of Best Practices in Remedial Education

Based on the data collected, MDHE has concluded that most public institutions are replicating best practices in remedial education, as directed by [HB 1042](#) and identified in the [Principles of Best Practice in Remedial Education](#). There are, however, some key areas of non-compliance.

With one exception, all institutions reporting that they offer remedial education do not follow the statewide placement scores identified in the [Principles of Best Practice in Remedial Education](#), and 13 institutions do not use multiple measures when placing students in credit-bearing or remedial coursework. These two practices are unquestionably best practices and essential to the state’s efforts to reduce the need for remedial education.

The use of a common statewide placement score is essential for conveying to high school students, parents, and counselors a consistent definition of what determines college-level content readiness. Higher education must speak with one voice on this issue, which the common placement scores are intended to do. Of greater importance is the use of multiple measures for placement purposes, which provides a more precise measurement of a student’s ability to succeed in college-level coursework. Relying on a single, high-stakes assessment results in many students—especially those who score just under the cut score—being placed unnecessarily in remedial courses. This holds true no matter which assessment an institution uses. The University of Missouri-Columbia, the University of Missouri-Kansas City, and the University of Missouri-St. Louis use—in various ways—an assessment known as ALEKS (Assessment and Learning in Knowledge Spaces). UMKC reported it uses ALEKS only for placement into College Algebra; presumably, students who don’t place into College Algebra must take a remedial course. UMSL reported using ALEKS only to place students in gateway courses, and that “there are no remedial courses into which students are placed based on placement tests.” Nonetheless, some UMSL students make their way into remedial coursework. The same holds true for the University of Missouri-Columbia. Only ALEKS scores affect placement, although the university uses ACT scores and high school coursework to corroborate those scores.

Recommendations

The following recommendations and conclusions reflect findings from this survey.

- 1. Use common scores and multiple measures to place students in credit-bearing courses.**
All public institutions in Missouri must follow the statewide placement scores as this helps to

strengthen a common definition of what higher education deems as college ready. It is also recommended that the MDHE and institutions continually work together to review and revise the scores provided in the [Principles of Best Practice in Remedial Education](#) and based on current and relevant state and national data.

Experts in the field of remedial education overwhelmingly agree that using multiple measures to place students into the appropriate courses is a best practice. The MDHE included a strong recommendation for the use of multiple measures in the [Principles of Best Practice](#), and has continued to endorse this practice. The survey data indicate that most institutions are currently using multiple measures in order to place students, or will be fully implementing the use of multiple measures starting fall 2016.

It is strongly recommended that institutions continue to employ the use of multiple measures when placing students, and that they work closely with the MDHE in further identifying combinations of measures that may prove most successful in placing students where they will be most academically successful.

2. Encourage the State Board of Education to adopt the [CBHE Recommended College Preparatory High School Core Curriculum](#)

The CBHE revised its Recommended College Preparatory High School Core Curriculum to increase the required mathematics units from three to four, and to emphasize the importance of taking a math course in grade 12. Research strongly suggests that students who follow this curriculum succeed in postsecondary education at much higher rates than those who do not. The CBHE strongly encourages the State Board of Education to adopt the [CBHE Recommended College Preparatory High School Core Curriculum](#).

3. Adopt accelerated remedial education models as soon as possible.

Since 2012, many institutions reported having implemented some type of alternative remedial education model, such as corequisite courses and self-paced, mastery-based modules. Some institutions have not yet implemented accelerated models, and others are currently exploring appropriate models. These institutions should be encouraged to adopt—as soon as is feasible—accelerated remedial education models that will allow many more students to progress into college-level gateway courses as quickly as possible.

As noted above in Table 4, preliminary data strongly suggests that corequisite remediation is highly effective. Though the cohort is small, those enrolled in corequisite courses are markedly more successful at completing relevant college-level coursework within two years than students taking a traditional, semester-long remedial course.

Missouri is working with 22 public institutions and Complete College America on the *Corequisite at Scale* initiative. This project will allow participating institutions to scale up corequisite academic support for students who would have otherwise been placed in traditional remedial education sequences. The goal is for all participating institutions to have their corequisite model in place by the academic year 2017-2018.

4. Develop early intervention strategies.

The survey data indicate that many institutions are using early intervention strategies in an effort to prevent students from having to take remedial education courses during their first semester. These strategies include summer intensive workshops, bootcamps, or bridge programs, as well as outreach to local high schools. Examples of outreach to high schools include offering the Compass exam to sophomores, or explaining the institution's remedial education process to students. Only four

institutions, however, reported engaging in any outreach to local high schools.

SB 638 (167.905.1) requires all school districts to develop and implement a “measurable system for identifying students in their ninth grade year, or students who transfer into the school subsequent to their ninth grade year, who are at risk of not being ready for college-level work or for entry-level career positions.” This is an opportunity for colleges and universities to reach out to local districts and help them in developing and implementing early intervention strategies.

We recommend that institutions continue to offer intensive summer programs, and either begin or continue to engage in partnerships with local high schools. These partnerships are important as they allow institutions to communicate with students about remedial education and college readiness, as well as further provide both the high school and institutions the ability to offer the appropriate support to students in order to significantly reduce or even eliminate students’ needs for remedial education.

5. Develop and implement threshold policies and practices.

While many students need only to brush-up in a single subject, there are others who may be severely underprepared and have little chance of earning a postsecondary degree in a timely manner.

The [*Principles of Best Practice in Remedial Education*](#) requires students to demonstrate a minimal level of literacy and academic competence before they can enroll at a public institution of higher education in Missouri as a degree-seeking student.

While the MDHE and the CCCR have not yet fully implemented this section of the policy, this survey sought to identify those institutions that have already begun to implement threshold or floor scores. The data indicate that one institution has recently implemented a threshold score for both English and mathematics, while three other institutions are either in the process of implementing a threshold score or are strongly advising students that are severely deficient in English and mathematics to partake in programs through their Adult Education and Literacy (AEL) programs.

MDHE should continue to work with the CCCR and institutions in order to identify threshold scores that will work for all students and institutions, especially for those open-enrollment institutions. It is also recommended that institutions explore options for bringing AEL to their campus or community.