



THE COLLEGE SYSTEM  
of TENNESSEE

# Tennessee Board of Regents

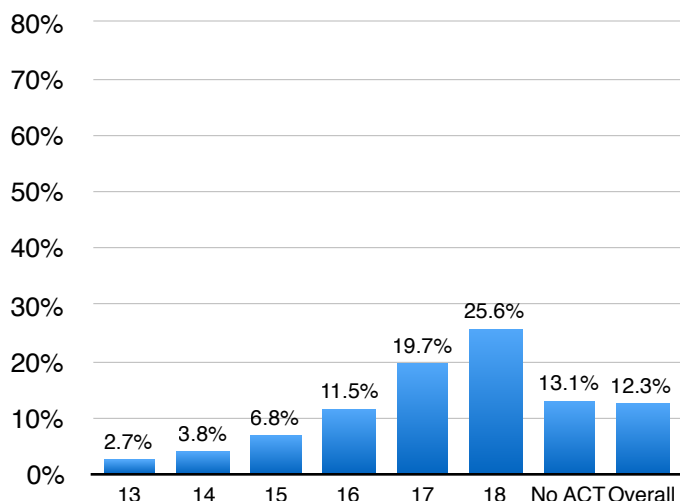
Office of the Vice Chancellor for Academic Affairs

## Co-requisite Remediation Pilot Study — Fall 2014 and Spring 2015 and Full Implementation Fall 2015

In 2007, as part of a system-wide redesign project funded by the Fund for the Improvement of Postsecondary Education (FIPSE) and the National Center for Academic Transformation, Austin Peay State University pioneered an approach to remediation for incoming students who arrive with developmental needs in mathematics, reading and/or writing. This co-requisite model transformed their previous success rate of fewer than 10% of students completing a credit-bearing math class over several semesters to more than 70% completing a credit-bearing math class in a single semester. This work has been recognized by the Dana Center, Complete College America, Education Commission of the States, and Jobs for the Future as a national model for success in developmental education.

Based on this initial work the Tennessee Board of Regents (TBR) began a study of the effectiveness of its system-wide approach to developmental education in community college, when success was viewed from the perspective of students completing a credit-bearing math, writing or reading-intensive class

Historical Percentages of Community College students completing a credit-bearing Math class in an academic year

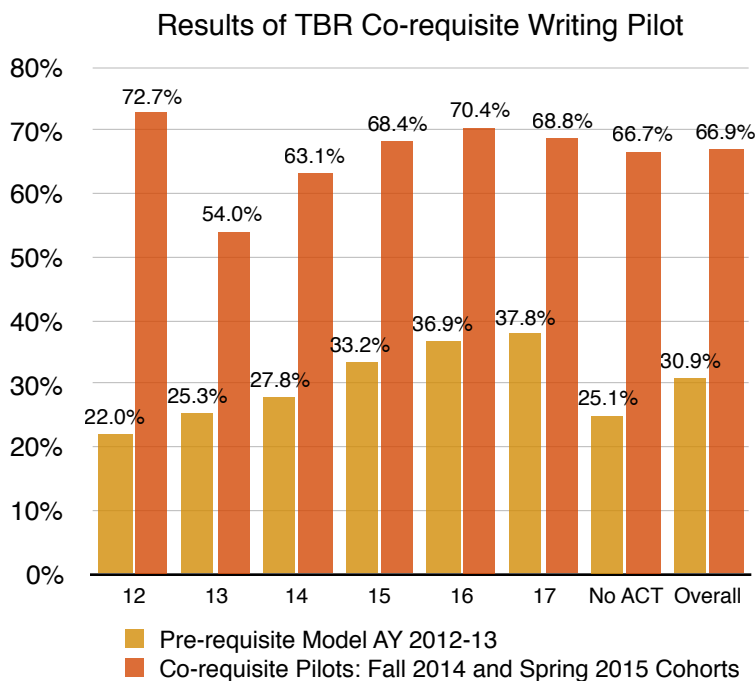
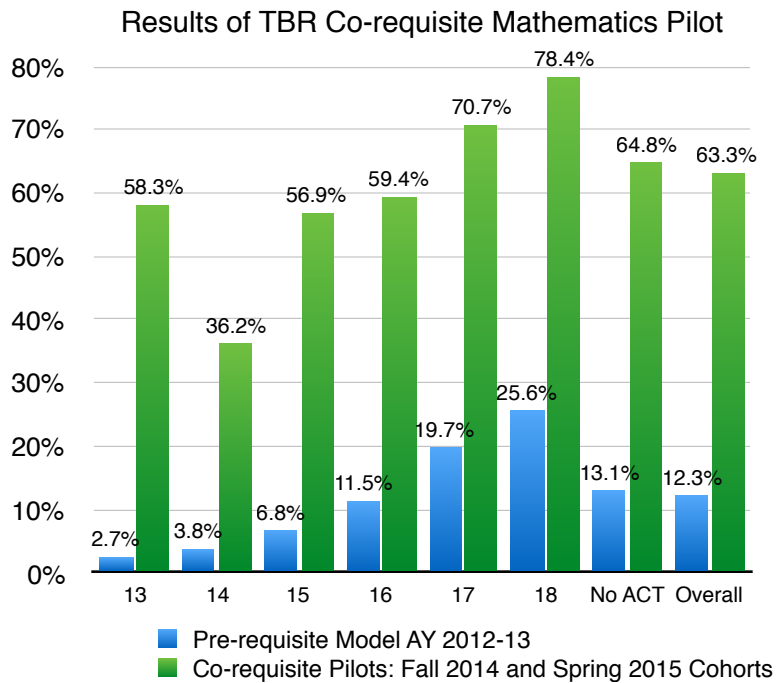


Data from Academic Year 2012-13

within an academic year. To understand more clearly how the preparedness of students would affect their potential success in these course completions we chose to disaggregate the data by ACT sub-score. Since system-wide, more than 60% of TBR students begin college with need for remediation in math, reading and/or writing the results of the analysis were startling. Overall only 12.3% of the students who began in a remediation course completed a credit-bearing mathematics class within an academic year, and

Tennessee Board of Regents Technical Brief No. 1 - Tristan Denley  
 only 30.9% completed a credit-bearing writing class.

In Fall 2014 and Spring 2015, we carried out a substantial pilot of the co-requisite model of instruction in the community college setting. In mathematics, 1,019 students across 9 campuses who would otherwise have been placed into learning support mathematics were enrolled directly into an Introductory Statistics class, and were required to also attend a supplementary instruction experience. Similarly, 957 students at 7 community colleges who would otherwise have been placed into learning support writing were enrolled into a credit-bearing freshman writing class with required co-requisite support. We disaggregated the data by ACT score, so that we would be able to gauge the effectiveness of this approach for students with various levels of preparation.



The results of the pilot were extremely encouraging. In mathematics, of the the 1019 enrolled students, 63.3% received a passing grade in the class (compared to 12.3% under the old model). Not only did we see this 50 percentage point increase overall, but we saw strikingly higher success rates for students at every ACT mathematics sub-score. These successes were not limited to mathematics. Of the 957 students enrolled in the writing pilot, 66.9%

## Tennessee Board of Regents Technical Brief No. 1 - Tristan Denley

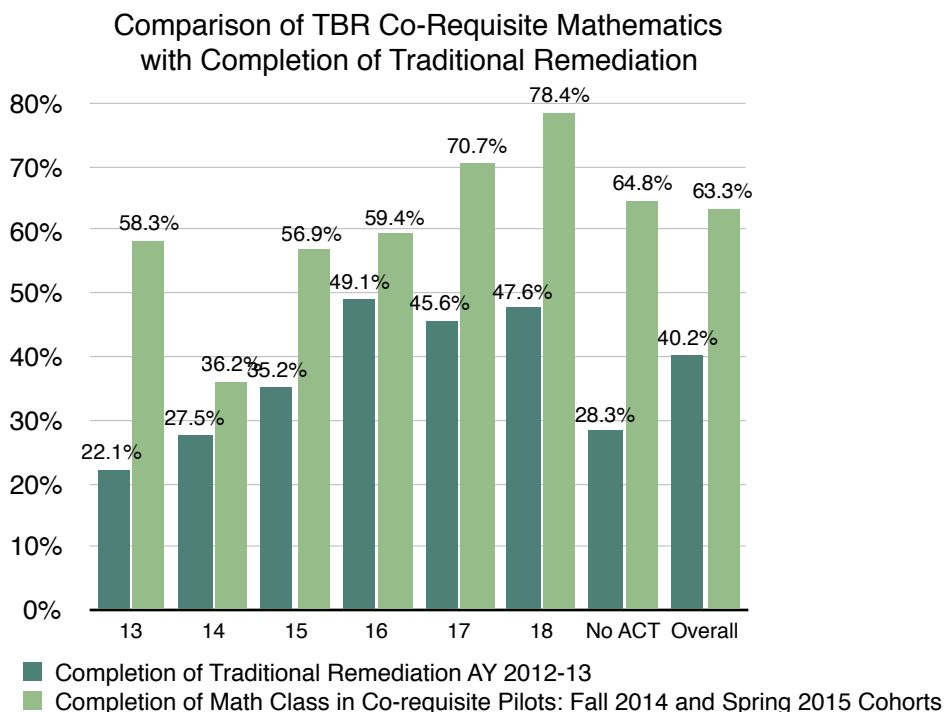
received a passing grade in the class. Once again this compares extremely favorably with the historical success rate of 30.9%, and once again we saw gains for students at every ACT writing sub-score. Further disaggregation by race, and by age, show that these learning gains were achieved across the full spectrum of the student population at every ACT-level. For minority students the success rate in mathematics rose more than six-fold from its historical 6.7% to 41.8%. In writing the achievement gap was all but closed with success rate increases from a historic 18.6% to 63.5% in the pilot.

Recent discussion concerning the affective and non-cognitive aspects surrounding the college remediation experience recognizes the profound impact of students questioning whether they belong. We compared the success rates for students enrolled directly into the credit-bearing classes with the historical rates of students successfully completing the remediation designed to prepare them for that class. We have shown the results for mathematics here, but the results for writing are similar.

Once again significantly larger proportions of students at every ACT sub-score level completed the credit-bearing class in a single semester than traditionally have completed their remediation in a full academic year. These results add significant credence to their being more than academic effects involved in remediation success.

In response, the TBR System organized three co-requisite academies in March 2015, inviting faculty from all 19 institutions to present results from their pilot models and develop plans to take their pilots to institutional scale. All TBR universities and community colleges are now fully implementing the co-requisite mathematics, reading and writing models for all students.

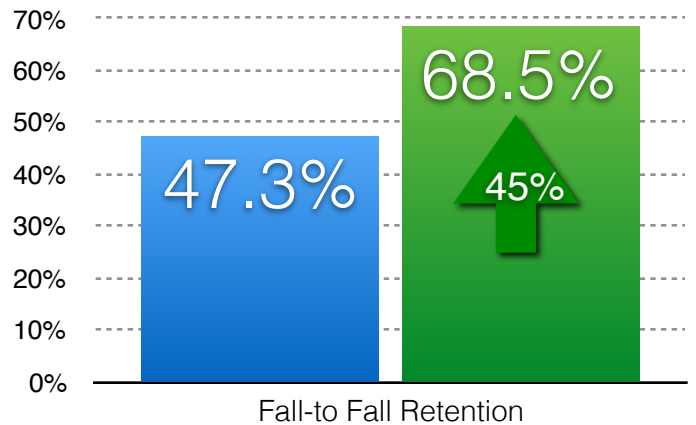
It is now more than a year since the Fall 2014 students began in their pilots, and so there is an



Tennessee Board of Regents Technical Brief No. 1 - Tristan Denley

opportunity to also analyze the data more longitudinally. Once again the early analysis is very encouraging. The students who took part in the Mathematics co-requisite pilot had a much increased fall-to-fall retention rate compared with their colleagues who went through standard learning-support. The retention rate for the co-requisite students was 57.4% compared with 43.3% of the more than 38,000 who were not part of the pilot. There was increase in retention no-matter whether the student passed their credit-bearing math class in the fall, but the increase was most pronounced for the students who successfully passed the class compared with their colleagues who completed their remediation. For these students the increase was from 47.3% to 68.5%.

Comparison of TBR Co-Requisite Mathematics with Completion of Traditional Remediation

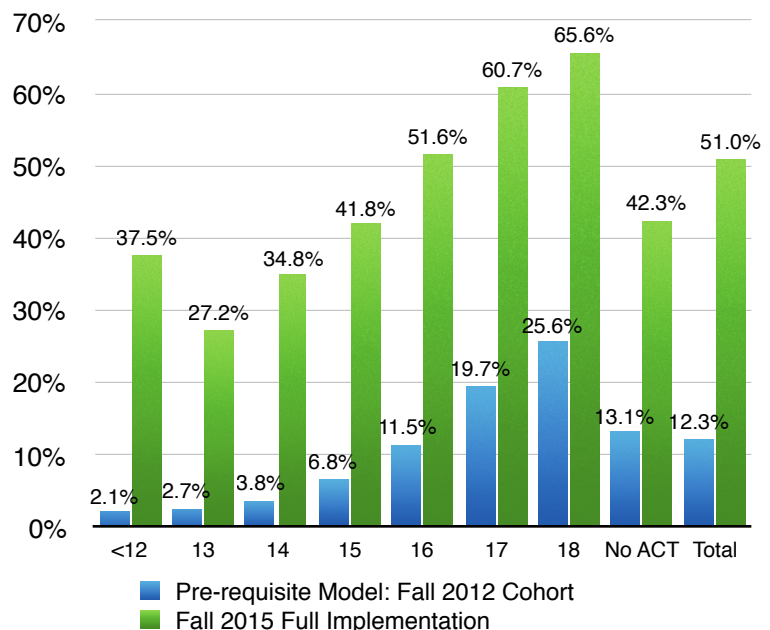


- Completion of Traditional Remediation AY 2014-15
- Completion of Math Class in Co-requisite Pilots: Fall 2014 Cohort

The students who were part of the co-requisite pilots were also more successful across all of their first year classes, earning an average of 20.83 credit hours compared with 17.16 credit hours earned by those students not in the pilot. Not surprisingly, students who successfully completed their mathematics class in the pilot did even better, earning 21.38 hours, but students who did not pass their mathematics in the fall earned an average of 19.07 credit hours which is essentially identical to the 19.09 credit hours earned by those students who successfully completed their remediation in the traditional model.

All TBR universities and community colleges began fully implementing the co-requisite mathematics, reading and writing models for all students beginning Fall 2015. Although there is much yet to analyze in the semesters data, we can already see that the initial improvements promised by the pilot are apparent.

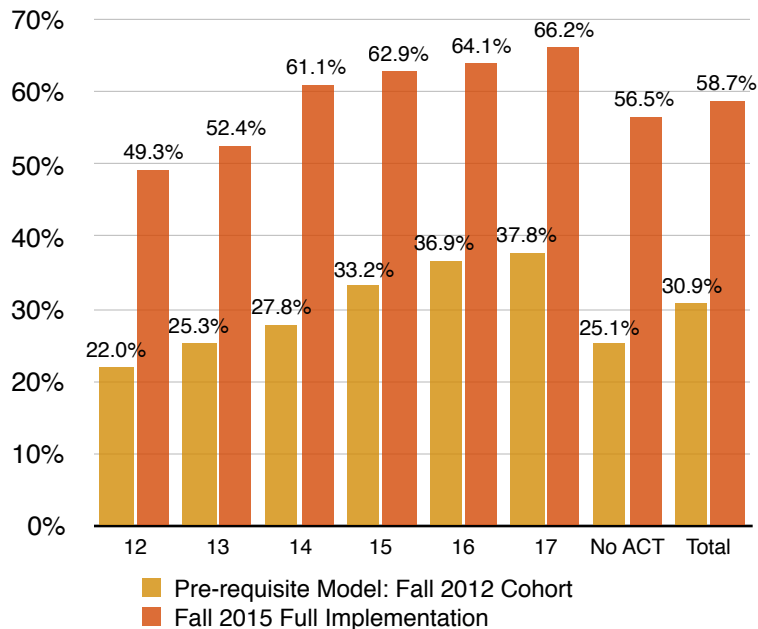
Results of TBR Co-requisite Mathematics Full Implementation



## Tennessee Board of Regents Technical Brief No. 1 - Tristan Denley

Overall for those students who were took a co-requisite mathematics class this fall 51 percent received a passing grade in their credit bearing mathematics class in that first semester. This is a more than four-fold increase over the original pre-requisite model, in which only 12.3 percent of those students achieved that same passing grade in an entire academic year. Similarly the pass rate for those students who took a co-requisite writing class doubled over the historic 30.9 percent over an academic year to 58.7 percent in a single semester.

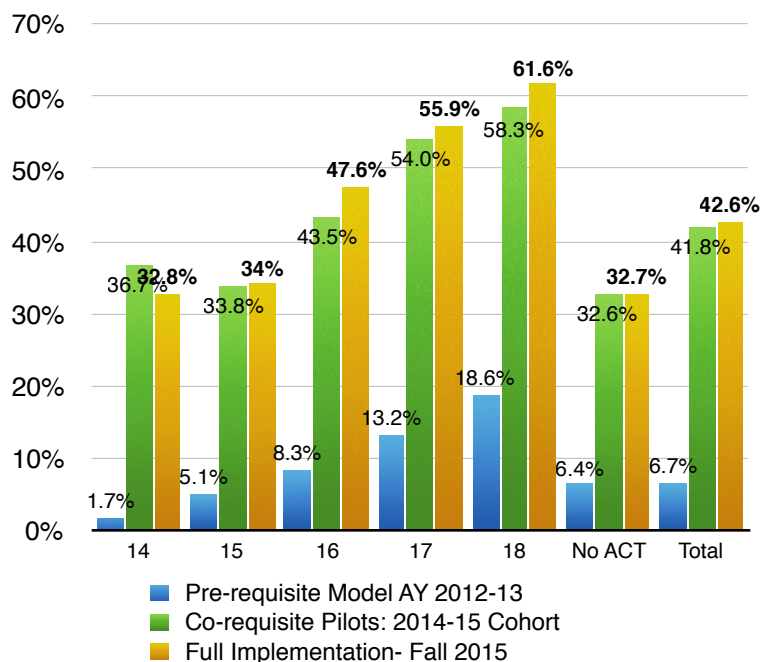
### Results of TBR Co-requisite Writing Full Implementation



Just as in the pilots we saw substantial gains in student success across the full range of ACT scores, indeed the pass rates in the credit bearing classes were larger than the rates at which students historically completed their developmental courses in a full academic year. While these results were a little lower than we saw in the pilot data, they are still substantial improvements over the previous approach.

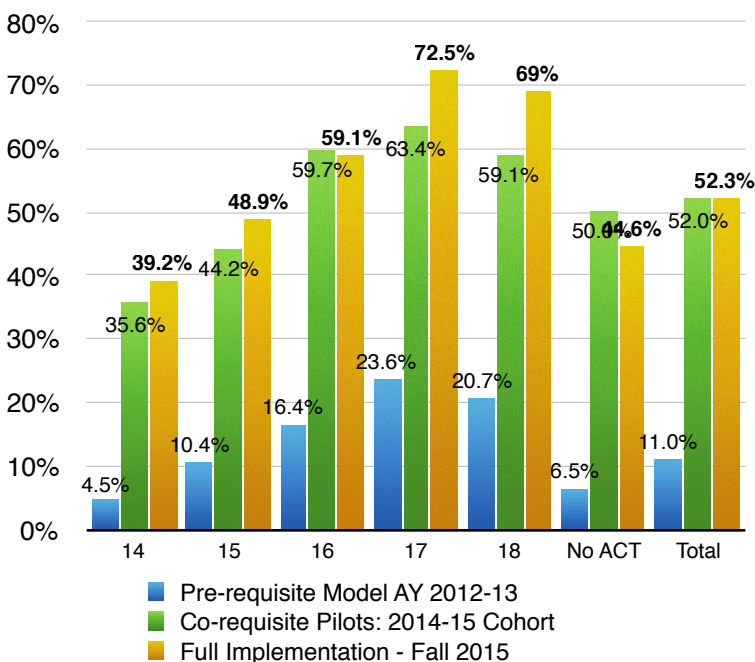
Although the results were a little lower overall, that pattern was not true for minority, adult and low-income students. For minority students the success rate in mathematics rose more than six-fold to 42.6% just as it had in the pilot. In writing the achievement gap was all but closed at full scale with a success rate increase from a historic 18.6% to 52.8% in the full implementation, with the typical

### Results of TBR Co-requisite Mathematics Full Implementation - Minority Students



Tennessee Board of Regents Technical Brief No. 1 - Tristan Denley

Results of TBR Co-requisite Mathematics  
Full Implementation - Adult Students



significant gains across the ACT spectrum. Results for adult and low-income followed that same pattern across the board. The success rates for adults showed an almost five-fold increase in mathematics from 11% to 52.3%, and a doubling in writing from 30.9% to 63.3%. Results for low-income in the full implementation showed little difference from the general population with success rates in mathematics at 48.4% and 57.6% in writing

This spring we have events planned to convene groups of faculty from each discipline group. These groups will be able to have conversations about best practices and lessons learned illuminated by careful analysis of the statewide data so that we will be able to refine the approach still further.

*For further information concerning this study or other student success initiatives in the Tennessee Board of Regents contact Dr. Tristan Denley, Vice Chancellor for Academic Affairs, [tristan.denley@tbr.edu](mailto:tristan.denley@tbr.edu)*