**PARCC Achievement and Post-Secondary Outcomes**

A Research Report Submitted to Maryland State Department of Education (MSDE)

Maryland Assessment Research Center (MARC)

**Executive Summary**

This research study is to investigate the relationships between post-secondary academic outcomes and PARCC test scores as well as college admission test (SAT and ACT) scores. This project uses the PARCC ALG01, ALG02, ELA10, ELA11, SAT and ACT test score data from 2015 to 2017 and college cumulative grade point average (GPA) data from 2015 to 2018. The following analyses were conducted.

1. Correlational analyses between the end-of-first-year college cumulative GPA and PARCC, SAT, and ACT test scores respectively;
2. Regression analyses using the PARCC, SAT and ACT test scores to predict the end-of-first-year college cumulative GPA;
3. Concordance relationships established using the samples of students whose PARCC test scores and the end-of-first-year college cumulative GPA are both available. The PARCC equivalents of the GPA cut scores as well as the GPA equivalents of the PARCC cut scores dividing adjacent performance levels are obtained accordingly. The empirical PARCC cut scores corresponding to the end-of-first-year college cumulative GPA of 3.0 are suggested;
4. Graphical presentations of the results in addition to the statistical analysis. This perspective focused on the performance levels obtained on the PARCC tests (levels 1 through 5).

**Major Findings/Talking Points**

1. This study was conducted based on samples of students whose end-of-first-year college cumulative GPA and PARCC/SAT/ACT scores are both available (i.e., longitudinal samples). The end-of-first-year college cumulative GPA from 2015 to 2018 were analyzed. This study used two rules to define the end-of-first-year college cumulative GPA and the results were compared across the rules. In the first rule, the end-of-first-year college cumulative GPA was defined as the cumulative GPA reported at the earliest term when a student earned 30 or more cumulative credits from an institution. In the second rule, the end-of-first-year college cumulative GPA was defined as the weighted average of the cumulative GPA across institutions by cumulative credits calculated at the earliest term when a student earned a total of 30 or more cumulative credits from all the institutions he or she has attended. This study conducted analyses using PARCC scores from 2015 to 2016 as well as SAT and ACT scores up to 2017. Students’ latest attempts were used in all the analyses.
2. Thirty-one longitudinal samples with adequate sample sizes (i.e., a minimum of 30) were used for the correlational analyses and regression analyses. The results showed that the PARCC test scores as well as SAT/ACT sub-tests were moderately correlated with the end-of-first-year college cumulative GPA. Also, there was a moderate linear relationship between PARCC tests and the end-of-first-year college cumulative GPA. PARCC tests were statistically significant predictors of the end-of-first-year college cumulative GPA. PARCC scores as predictors, along with the SAT and ACT scores, explained 7.6% to 36.7% of the total variance in the end-of-first-year college cumulative GPA.
3. Graphical representations of the relationships between the PARCC performance levels and the end-of-first-year college cumulative GPA scores were mapped on four longitudinal samples, including the GPA-PARCC ALG01, GPA-PARCC ALG02, GPA-PARCC ELA10 and GPA-PARCC ELA11. Students with higher performance levels on PARCC tended to have higher end-of-first-year college cumulative GPA.
4. The PARCC test equivalents of the GPA cut scores were identified from the concordance tables obtained by linking the PARCC test scores to the end-of-first-year college cumulative GPA. Four concordance tables (see Appendix B) were constructed to show the linkage between student performance on PARCC ALG01, ALG02, ELA10 and ELA11 tests and the end-of-first-year college cumulative GPA, respectively.
5. According to the concordance tables between the PARCC test scores and the end-of-first-year college cumulative GPA, the PARCC ALG01, ALG02, ELA10 and ELA11 scores of 746, 702, 741 and 747, respectively, are equivalent to an end-of-first-year college cumulative GPA of 3.0, respectively. The differences are not interpretable as the tests are not on the same scale. These scores can be deemed as the empirical PARCC cut scores for college readiness if obtaining an end-of-first-year college cumulative GPA equal or higher than 3.0 is defined as college readiness. The empirical cut scores are lower than the theoretical cut scores determining whether students have met the expectations for their grade level/course (i.e., the cut scores dividing performance levels of 3 and 4).
6. All the results were similar across the two rules of the end-of-first-year college cumulative GPA definition.