



STRATEGIC **DATA** PROJECT

SDP FELLOWSHIP CAPSTONE REPORT

College Readiness: State and District Perspectives

Heather Boughton, Ohio Department of Education
Vasuki Rethinam, Howard County Public School System
Grace Chesney, Howard County Public School System
Peter Lavorini, Pittsburgh Public Schools

SDP Cohort 4 Fellows

SDP Fellowship Capstone Reports

SDP Fellows compose capstone reports to reflect the work that they led in their education agencies during the two-year program. The reports demonstrate both the impact fellows make and the role of SDP in supporting their growth as data strategists. Additionally, they provide recommendations to their host agency and will serve as guides to other agencies, future fellows, and researchers seeking to do similar work. *The views or opinions expressed in this report are those of the authors and do not necessarily reflect the views or position of SDP or the Center for Education Policy Research at Harvard University.*

I. Framing the Problem

Many students are entering college underprepared for rigorous college-level work, leading to remedial course-taking, delays in graduation, and dropouts. Moreover, enrollment in remedial courses increases costs to students because these are not credit bearing courses and students should have completed these courses while in high school. Schools are failing to prepare students for college and career success. Therefore, this report proposes the following overarching questions: What are the indicators of college readiness? What strategies can districts and schools use to leverage these data for school improvement and preparing students to be college ready? How can state agencies encourage and support this data use by school districts?

II. Literature Review

Students' academic readiness for college when they leave high school has long been recognized as an important predictor of college completion rates (Adelman, 1999). However, there is no single indicator that measures academic readiness (see Wiley, Wyatt, & Camara, 2010). Many validity studies have shown that a combination of high school grades and SAT scores are the best predictors of college grades (Zwick, 1999). Other studies have shown the importance of high school academic rigor as a predictor of college outcome (Adelman, 2006). Based on these studies, it is important to include multiple indicators (e.g., academic course taking, GPA, and test scores) in predicting student outcomes (Consortium on Chicago School Research, 2008; Rethinam, 2011). Course rigor, GPA, and test scores were chosen for this report because they are the most commonly used indicators in the literature and also because they are available data points at school districts.

Course Rigor

Course rigor in high school is the most powerful predictor of academic achievement, high school graduation, and enrollment in postsecondary education (ACT, 2004; Adelman, 1999; Rethinam, 2011; Rethinam & Von Secker, 2011). Studies have shown that students who took more intensive academic programs in high school attended and persisted in higher education at a greater rate than students who took less difficult programs of study (ACT, 2004; Adelman, 1999; Fry, 2004; Herold, 2003).

Studies have shown an association between Algebra 1 completion by the end of Grade 8 and high school graduation and college readiness. For example, students who took Algebra 1 by the end of Grade 8 were far more likely to take calculus in high school and pursue higher education than those who did not (Cooney & Bottoms, 2002; Riley, 1997). Taking a higher-level math course is also a consistent

predictor of college readiness and success. Adelman (1999) found that the single greatest predictor of successful college completion was taking a higher level mathematics course during high school. The work on the Algebra Project by Robert Moses demonstrated that if students do not successfully complete algebra, they are unlikely to succeed in postsecondary education (Checkley, 2001). Further, students who completed a class in high school mathematics above the Algebra 2 level were twice as likely to complete a bachelor's degree (Adelman, 1999).

Another measure of academic rigor that contributes to strengthening high school students' college readiness is participation in Advanced Placement (AP) courses and exams (Burney, 2010). Enrollment in an AP course has shown to be the most significant predictor of college going behavior (Adelman, 1999; Camara, 2003; NCES, 2003). Even if students do not earn college credit through the AP program, the AP courses offer rigorous curricula that students need to prepare for any postsecondary work. Findings of a longitudinal study indicated that having just one AP course nearly doubled the likelihood of students graduating from college (Adelman, 1999). Students who took and passed AP exams are much more likely than their peers to complete a bachelor's degree in four years or less (Camara, 2003; Hargrove, Godin, & Dodd, 2008). Also, students who earn AP exam scores of 3 or higher may be awarded course credit upon entry to college (Di Yanni, 2008). Students who excel in rigorous courses tend to get high SAT scores, regardless of other demographic characteristics such as race/ethnicity. Therefore, all students should be encouraged to take rigorous courses (Bridgeman & Wendler, 2004).

Enrollment in gifted and talented (GT) or any honors or advanced courses is another measure of academic rigor, however, students are often not given the same access to these courses based on their demographics (Gamoran & Hannigan, 2000), regardless of their prior achievement.

Standardized Test Scores

Students' performance on the PSAT is strongly correlated with SAT test performance, a college entrance exam (College Board, 2004b). PSAT test items are similar to those found on the SAT and therefore, increasingly, high school students nationwide are using the PSAT as a "practice" test for the SAT (College Board, 2004c). Because of this strong correlation, PSAT can be used as an early predictor of college readiness.

College Board research has claimed that the PSAT/NMSQT test items strongly align to the Common Core State Standards (Vasavada, Carman, Hart, & Luisier, 2010) and PSAT scores are indicators of college readiness (Proctor, Wyatt, & Wiley, 2010). A Grade 10 PSAT score of 145 is associated with a

65% likelihood of meeting the Grade 11 PSAT benchmark (PSAT score of 152). A Grade 11 PSAT score of 152 is associated with a 65% likelihood of meeting the SAT benchmark (SAT score of 1550) (Proctor, Wyatt, & Wiley, 2010). The College Board has revised their PSAT benchmarks recently. Another study by the College Board showed moderate to strong relationships between PSAT scores and indicators of academic achievement in high school including high school grade point average, rigorous course participation, academic intensity, and participation/performance in AP courses (Milewski & Sawtell, 2006).

GPA

While the predictive strength of the SAT score and course rigor has been shown by a number of studies, recent research is beginning to shed light on the strength of other predictors of college readiness, particularly that of high school GPA. Most recently, a 2014 study sponsored by the National Association for College Admission Counseling found that the success rates (college GPA and graduation rates) for students who submitted SAT or ACT scores were similar to those that did not (Hiss & Franks, 2014), implying that other factors—high school GPA in particular—can be just as predictive of success. Additional research showed that combining high school GPA and SAT scores can be better predictors of college GPA than either indicator alone (Zahner, Ramsaran, & Steedle, 2012).

III. Case Studies

Case Study: Ohio Department of Education's Prepared for Success Measures

Agency Profile

The Ohio Department of Education (ODE) oversees the state's K–12 public education system, which includes traditional public, community and STEM schools, as well as the state's Joint Vocational School Districts (JVSDs). Additionally, the department plays a role in monitoring early learning in Ohio's public preschools and education within the nonpublic sphere. In this capacity, ODE is responsible for administering the state's school funding system, state assessments, and the state's voucher program. On an ongoing basis, ODE collects student performance, staff, and fiscal data from districts and uses that data for, among other purposes, issuing districts' and schools' annual Report Cards.

Ohio's educational landscape is varied; the state's 1.7 million publicly educated K–12 students are served by 614 traditional public school districts operating 3,193 traditional public schools, 397 community schools, five STEM districts, and 49 Joint Vocational School Districts. Each of these educational communities comes with its own history, traditions, strengths and challenges. Furthermore, as a local control state, each of these educational communities has significant influence over the opportunities provided to their students.

Currently, the Ohio Department of Education has two agency fellows participating in Cohort 4 of the Strategic Data Project (SDP). Chris Woolard is the Senior Executive Director of the Center for Accountability and Continuous Improvement, overseeing the development and implementation of the Ohio's Accountability system, as well as Ohio's Offices of Federal Programs, Improvement and Innovation, and Distress Commission and Reform. In his role, Woolard is heavily involved in Ohio's Value Added program, the development and implementation of Ohio's teacher evaluation systems, and the Ohio Education Research Center (OERC). Heather Boughton is the Director of the Office of Data Quality. In this role, she is responsible for ensuring that the department is utilizing the most appropriate and accurate data available given its data-related goals. Boughton's work spans a wide range of projects, including the development of Ohio's P–20 data system, the Ohio Education Research Center (OERC) and the Ohio District and School Report Cards.

Ohio's Prepared for Success Measures

Despite the wide diversity in student populations, administrative organization, and educational approaches that exist across districts, there are commonalities that tie the state together. An awareness that the impact of the K–12 system extends beyond high school completion, and the desire to positively impact students' postsecondary success, are two such commonalities. Statewide, each graduation cohort includes approximately 120,000 graduates and another 21,000 students who do not complete the requirement for their high school diploma. Each of these students must go on to make a life for themselves and their families and the state of Ohio is committed to providing every one of our students a range of tools that will empower them to succeed. It is this goal that serves as the impetus for the state's recent focus on measures of postsecondary preparation, as reflected in the new Prepared for Success Measure on Ohio's Report Cards.

The new Prepared for Success Measure is not the state's first effort to highlight measures related to college preparation at the high school level. Prepared for Success does, however, represent the state's first effort to construct an accountability measure that:

- 1) Addresses both college *and* career readiness;
- 2) Has strong support via Ohio legislation and the State Board of Education;
- 3) Represents a comprehensive picture of the approaches taken to prepare students; and
- 4) Requires cross-agency, as well as external, non-state, data resources to construct.

As such, the Prepared for Success measures represent the state's most comprehensive effort to date to highlight the many approaches districts are taking to preparing their students for life after high school.

Starting with the Ohio's 2014 Report Cards, Ohio Revised Code ([3302.03](#)) specifically requires the Ohio Department of Education to report on both inputs to postsecondary preparation, as well as postsecondary outcomes (Appendix C, Defining Prepared for Success). As defined in law, inputs include measures of participation in programs such as Advanced Placement and Dual Enrollment. Measured outcomes will ultimately include college enrollment, persistence and credits earned, as well as measures of employment and military enlistment. Not only do these additional postsecondary outcome measures represent the student outcomes the state is trying to positively influence, but they highlight the state's interest in supporting all students, regardless of their individual postsecondary goals.

Project Scope

In late 2012, the Ohio legislature passed law requiring the department to report on and, ultimately, grade districts' and schools' performance in terms of student preparation for their

postsecondary experiences (Ohio Revised Code, [3302.03;3314.017](#)). In their roles at the Ohio Department of Education, both SDP Fellows have been involved in implementing this law. In his former role as Director of Accountability and current role as Senior Executive Director, Woolard is responsible for the policy decisions that represent the department's interpretation of the law, as well as overseeing the design of the Prepared for Success webpage (Appendix A, Ohio's Report Cards) and the work of communicating the new Report Card measures to the field. Boughton's ongoing work with this project focuses on the work of operationalizing each required element, determining the appropriate sources of data for each element, developing and executing a project plan to secure the appropriate data sources, and developing a plan for ensuring that the data the department utilizes is accurate.

It is this final task that is undergoing the most significant evolution as the department develops and implements the comprehensive set of Prepared for Success measures and it is this work that will remain the primary focus of Boughton's efforts after the conclusion of the SDP Fellowship. In conjunction with the increasing sophistication and complexity of Ohio's state longitudinal data collection and reporting system, the Ohio Department of Education is building its capacity to address data quality assurance issues associated with its accountability system.

In the case of Prepared for Success, this means a shift in data sources, a new approach to communicating with the field around data, and the development of a comprehensive data quality assurance and review plan that is fully integrated into the overall Prepared for Success project plan.

Results/Impact

Current estimates of Ohio's postsecondary enrollment suggest that approximately 42% of Ohio's graduates go on to enroll in one of Ohio's in-state, public institutions for higher education (Ohio Board of Regents, High School to College Transition Report, 2013). Of those, roughly 40% require developmental coursework in Math or English. Approximately 40% go on to complete a degree within six years of entering higher education (Ohio Board of Regents, based on 2007 High School Graduates). At this point, we do not know how many of our students leave the K–12 system and successfully pursue immediate employment or military enlistment.

By placing the Prepared for Success measures on Ohio's Report Card, a prominent location for districts and schools, the state is signaling to district, schools, parents and students that postsecondary preparation is an important component of the K–12 education system. In looking at the data published on the 2014 Report Cards, we know that results vary widely. For example, while all of our traditional public districts had at least some students taking the ACT, participation ranges from 30 to 100% in each

district and the average composite ACT score ranged from 15 to 27 across districts. In 250 of Ohio's 614 districts, zero percent of the students in the class of 2013 participated in an Advanced Placement course, while in many others, not only did the majority of students participate, but the majority earned at least one 3 or higher on an AP test. Finally, in 2013, only 17 of Ohio's traditional public schools offered the International Baccalaureate program, serving between 30 and 370 students. International Baccalaureate test passage rates at these schools ranged from 40 to 70%.

Ohio's expectation is that by making this information available to districts and the public, and by explicitly tying it to postsecondary outcomes by incorporating both into the Prepared for Success reporting system, we will encourage districts to seek out more information about the programs that are working for students, leverage others' experiences with these programs, and increase the sense of urgency around this data.

What has been confirmed by this project, however, is that for the Prepared for Success accountability measures to have a positive impact, the state must ensure that the data behind the reports is an accurate reflection of what is happening in districts. In response to the need for accuracy, the department has made several changes. For example, in the past, communications from the department regarding data collection were primarily targeted towards district staff responsible for reporting the data. In the coming months, however, district superintendents, staff responsible for data reporting, and other district staff such as guidance counselors, will all receive communications targeted to their particular role in ensuring the accuracy of the Prepared for Success data. In addition, we are revising our standards to allow districts improved opportunities to review their data prior to release, increasing both the amount of time and the level of detail available to district data analysts as they assess their data for accuracy and completeness.

Next Steps

Like many states, Ohio is working towards a greater alignment between the K–12, postsecondary, and workforce sectors, a step viewed as critical in the effort to increase postsecondary readiness (Arnold et al., 2012; Quay, 2010). This is true from a policy perspective, but also true from a data systems perspective.

Currently, the state of Ohio does not have a shared identifier that would allow the Ohio Department of Education to track students across sectors. Ohio law specifically prohibits the department from collecting or maintaining student names, social security numbers, or addresses (ORC 3301.12; ORC 3301.0714). This precaution is an important factor in the department's ability to protect

student privacy; however, it does have important practical implications for our ability to evaluate the efficacy of our postsecondary preparation programs. Essentially, using our current data resources, we cannot determine the postsecondary outcomes associated with our students, nor can we identify causal relationships between the steps students take to prepare for their postsecondary life and their actual postsecondary outcomes.

Thus, a critical next step in this project is to enact plans to secure additional postsecondary data resources while still protecting student privacy. Currently, the department does not have the ability to link ACT, SAT, Advanced Placement, and International Baccalaureate data to our students. Furthermore, while the Ohio Board of Regents does collect a wide range of data on postsecondary enrollment, performance and completion, this data collection is limited to students that enroll at in-state, public institutions of higher education.

We plan to address the gaps in our data through a multi-pronged approach. First, beginning in 2014, the Ohio Department of Education is collecting ACT, SAT, AP, and IB data directly from districts, meaning that this data will be linked to our students via a confidential statewide student identifier. In addition, with funds from several federal Statewide Longitudinal Data System (SLDS) grants, Ohio is building a P–20 data system that will link the K–12 student data system to the postsecondary educational data system.

These steps are critical, but do not fully address the department’s data needs. In her role, Boughton is working with agency leadership, the department’s legal office, and the relevant external vendors to develop and implement a process whereby the department can receive external data that includes only the statewide student identifier. Once implemented, this process will allow the department to receive college enrollment data from the National Student Clearinghouse (NSC), historical and detailed data files from ACT, College Board, and International Baccalaureate.

Beyond the collection of postsecondary preparation and outcome data, it is also important to note that the requirements in Ohio Revised Code provide the Ohio Department of Education with an opportunity to look beyond an accountability perspective and identify ways in which the state can support districts and schools in their efforts to prepare students for post-graduation success. While the department is required to report on specific measures, there is also an opportunity for the department to provide additional data to districts in the form of feedback reports or early warning systems. Many districts, for example, do not currently receive systematic data reports on their students’ postsecondary outcomes, and this is a potential opportunity for the department to develop such reports for all districts.

Finally, developing a system of data reporting triggers a range of questions about the *programmatic* supports offered to districts by the department. Through Ohio's accountability system, the department is showing districts what we consider to be the important factors in postsecondary readiness; our next step is to help districts incorporate those factors into their educational programs in meaningful and efficient ways. As the state builds the data reporting system that will allow districts to see the value in programs like International Baccalaureate and Advanced Placement coursework, the department should be prepared to provide resources to support the expansion of these programs.

Case Study: Howard County Public School System

Agency Profile

Howard County is located in central Maryland, between Baltimore and Washington, D.C. Howard County is frequently cited for its affluence, quality of life, and excellent schools. With a median family income of \$108,844, Howard County was ranked the second wealthiest county by median household income in the United States by the U.S. Census Bureau in 2013. According to the 2012 US Census Bureau, more than 95% of persons aged 25 years or older had earned a HS diploma or its equivalent and 59.5% had earned Bachelor's degree or higher (2008-2012 American Community Survey 5-Year Estimates).

The Howard County Public School System (HCPSS) serves approximately 51,681 students from Kindergarten through Grade 12 and employs 8,084 staff. The system consists of 41 elementary, 20 middle, 12 high schools, and 3 education centers. The student population is 18% Asian, 22% Black/African American, 9% Hispanic/Latino, 44% White, 6% two or more races, and less than 5% American Indian/Alaskan and Hawaiian Pacific Islander. Nineteen percent of the system's students were eligible to receive Free and Reduced-Price Meals (FARMS), less than 5% received English for Speakers of Other Languages (ESOL) and 9% received special education services in SY2014.

HCPSS has a national reputation for excellence, with the vast majority of students consistently ranking among the best in the nation in measures of academic performance, graduation rate, and college enrollment and completion rate. The following is a snapshot of HCPSS's performance:

- High school 4-year cohort graduation rate of 93.25% (2013)
- AP pass rate of 81.4% (2014 all test takers)
- SAT participation rate of 80.3% (2013 graduates)
- Average SAT composite score of 1653 compared to 1498 nationally (2013 graduates)
- College enrollment the fall immediately after HS graduation of 81.0% (2013 graduates)
- College completion of graduates who enrolled in college in the fall immediately after HS graduation 71.8% (2007 graduates)

SDP Fellows

HCPSS has three agency fellows (Rethinam, Wise, and Chesney) and one data fellow (Thukral) participating in Cohort 4 of the Strategic Data Project (SDP), two of whom are involved in this capstone

project. E. Grace Chesney is the Chief Accountability Officer and oversees Research and Evaluation, Assessment, Strategic Planning, Continuous Improvement, Shared Accountability, and Data Management (Student Information Systems, Data Warehouse and Reporting). In her role, Chesney is involved in constructing data sets and dashboards specific to monitoring and analyzing student achievement, analyzing data across all divisions and curricular areas, data coaching and communicating results to stakeholders. Dr. Vasuki Rethinam is the coordinator who oversees rigorous research and program evaluation that influences decisions about program effectiveness and applied research in the district. In her role she designs and conducts predictive analytics to understand factors that influence student outcomes. In collaboration with other research staff, Rethinam helps district leadership in using data/research-driven decision making to inform policy and schools' continuous improvement processes. She also communicates research results to district and school leaders, and presents at national conferences.

Project Background

The Superintendent's entry plan (2012), "Becoming World Class," emphasizes the following goals: developing the whole child, inspiring creative thinking, innovation, perseverance, and life-long learning; ensuring all students graduate from high school ready to enter college or the workforce; and achievement, communication, collaboration, engagement, organizational alignment, and technology innovations. In this entry plan the Superintendent also made stakeholders aware of the partnership with the Center for Education Policy Research (CEPR) at Harvard University to conduct thorough diagnostic analyses of student achievement trends and gaps and to evaluate how HCPSS currently uses data at the system and school levels. The entry plan and the analyses by CEPR laid the foundation for research and professional learning during SY2013.

In March 2013 Superintendent Foose along with Dr. Jon Fullerton (CEPR) and Dr. Lillian Lowery (Maryland State Superintendent) presented student achievement data and strategies for eliminating achievement gaps to the Howard County community. This presentation, "A Call to Action: Delivering the Promise of Preparation" was sponsored by the Howard County African American Community Roundtable.

In June 2013, Julia Bloom-Weltman, Jon Fullerton, and Rachel Hitch of CEPR presented the HCPSS findings on student achievement and participation trends to the HCPSS Board of Education. In summary, the researchers found that HCPSS has very high overall achievement levels and has continued to improve over the last five years. However, large and persistent achievement gaps remain between

student groups on state assessments and these achievement gaps appear to translate into rigorous course participation and attainment gaps in high school. When they accounted for prior achievement, though they still remained, the gaps shrank dramatically. They also found that disadvantaged, African American and Hispanic students were less likely to be placed in gifted and talented courses even after controlling for prior achievement (Bloom-Weltman & Fullerton, 2013). In addition to analyzing student achievement and participation trends, Fullerton and Hitch audited HCPSS's strategic use of data and identified two high priority items: creating an actionable strategic plan with clear strategic priorities and measurable process, output and outcome goals and; building and improving "real-time analysis" and reporting functions of existing data systems.

Research Questions

HCPSS' vision is to ensure that *every student achieves academic excellence in an inspiring, engaging, and supportive environment* (HCPSS Strategic Plan Vision 2018). To meet this goal, it is important to strategically focus the district's efforts and resources to close the opportunity gaps through rigorous course participation and performance. One strategy to meet this goal involves developing academic milestones to college and career readiness and ensuring that all students are on this pathway. HCPSS uses an SAT combined score of 1650 or higher or an ACT of 24 or higher as benchmarks for college and career readiness. The 1650 combined score is based on minimum requirements of local colleges for enrollment in credit bearing courses. To establish milestones specific to HCPSS the following research questions were asked:

1. What patterns of course taking and test performance for students in secondary school predict college-ready scores of 1650 or higher on the SAT or 24 or higher on the ACT?
2. What is the likelihood of students who achieve college-ready scores enrolling in a postsecondary institution immediately after high school graduation?
3. Does a gap in college readiness exist by race/ethnicity or SES? If so, does that gap reduce as rigorous course taking and test performance are added to the model?
4. What strategies could be used at the district and school levels to apply these findings to increase college readiness, postsecondary enrollment and reduce any opportunity gaps by race/ethnicity or socioeconomic status?

HCPSS Research

In September 2012 HCPSS acquired StudentTrackerSM data from the National Student Clearinghouse (NSC) to examine postsecondary enrollment and achievements of HCPSS high school graduates. These data were then combined with student transcript records and test scores to develop course taking milestone model to conduct the analysis.

With this data, Rethinam led two major research projects. The first, analyzed the student tracker data to examine college enrollment, persistence, and completion rates for HCPSS graduates of 2006–2012 cohorts (Rethinam, November 2013). The second developed a predictive model to examine the high school indicators that predicted college readiness and Fall College enrollment for HCPSS graduates of 2011 and 2012 cohorts (Rethinam, an unpublished research report). Analysis of the NSC data was necessary for two reasons: (a) this was the first time the district’s college enrollment, persistence, and completion rates for HCPSS graduates were examined using official data (NSC data) instead of self-reported data from students; and (b) the college going data was used in the predictive analytics that were conducted later to examine the factors that predicted college readiness and fall college enrollment. Rethinam formulated the research questions (see above), merged files from different sources, screened, checked for outliers, conducted rigorous statistical analyses, and produced research reports and presented findings to stakeholder groups. Detailed methodology and results of this study can be found in appendix B.

Communication of Analyses

Throughout the research analyses, Rethinam shared indicators and preliminary analyses with the HCPSS research team, the executive leadership team (Superintendent, Deputy Superintendent, and Chiefs) and SDP Faculty Advisor (Dr. Robert Croninger). Dr. Croninger provided significant feedback on the research analyses and assisted in the gap analyses. The final research results were shared with all principals, assistant principals, directors and coordinators at the Superintendent’s Leadership I and II Meetings, which occur regularly during the school year.

All four fellows (Rethinam, Thukral, Chesney, and Wise) worked in collaboration with the Superintendent and staff in the offices of Research, Curriculum and Instruction, Professional and Organizational Development and Communications to develop the agendas, talking points, supporting documents and presentation slides for the November 2012, February 2014 and May 2014 Leadership I and II meetings. In addition, the fellows worked collaboratively with staff in the offices of Research, Curriculum and Instruction, School Performance and Data Management to connect the message and

statistics delivered in the general session to individual schools. Interactive documents including school and student level Excel workbooks were created to support the “data-dive” sessions with all HCPSS principals and assistant principals during the elementary, middle and high school breakout sessions.

During the November 2012 Leadership Meeting Superintendent Foose presented national, state and district high school graduation and college going data. During the general session she stated that the National Student Clearinghouse data would enable HCPSS to develop a K–12 trajectory by helping us to identify benchmarks that are highly correlated with college success.

During the high school breakout session, the fellows guided high school administrators through their individual school level reports which included college enrollment and persistence data for their 2006–2010 graduates. Prior to November 2012 principals relied on student self-reported data. Principals were excited to compare NSC data to the student self-reported data. They found that student self-reported data over-represented college going rates compared to the official data reported by NSC.

During the February 2014 Leadership Meeting the Superintendent presented Rethinam’s research and the importance of the benchmarks in providing every student with the opportunity to achieve academic excellence. During the breakout sessions, the fellows, with support from the Office of Curriculum and Instruction, conducted “data dive” exercises to model using multiple data points to inform course enrollment decisions. The data dive was focused on math course progression at Grades 5, 8 and 10. This exercise provided the opportunity to include principals from all levels, even though the research model was based only on the high school level.

The May 2014 Leadership Meeting focused on using HCPSS research-based benchmarks and the concept of benchmarking against other high performing school systems to set school and district targets. The Superintendent shared again the research by Rethinam and the preliminary HCPSS K–12 benchmarks, which set the stage for Chesney to share changes to the School Improvement Plan (SIP) data file and changes to the SIP process. Changes to the SIP included using research based benchmarks directly aligned to outcomes in the Strategic Plan “Vision 2018”. To identify root causes, develop action plans and set targets, school administrators were provided with trend data at the aggregate, disaggregate and student level. A major change to the SIP process was a shift in who set the individual school level targets. Prior to SY2015 district leaders identified both the benchmarks and the targets; now targets were to be set by individual school administrators in collaboration with their SIP team.

The May session highlighted the research that has been done over the last two years, including the importance of using research-based assessments, surveys and benchmarks, as well as using data strategically to make decisions to ensure every student receives a “world class” education.

On August 1, 2014, Rethinam presented the trajectory research at the annual STATS-DC Data Conference, (Marriott Wardman Park Hotel, Washington, DC). The presentation was entitled “Using Data to Identify Indicators of College Readiness” and featured a discussion to share how one school district uses rigorous research analytics, how these research results were presented to high school principals, and how they apply these research results in their schools.

Key Challenges and Next Steps

To date the greatest challenges have been a) access to accurate “real-time” data, organized in an actionable way and b) administrator’s ability to find, comprehend, and interpret data in order to use data to make instructional decisions and to use data to pose questions.

Aware that the data systems that HCPSS had in place did not meet the needs of the stakeholders (researchers, teachers, administrators), HCPSS contracted with IMPAQ International to do a comprehensive audit of HCPSS data systems, including data quality, data processes and data governance. As a result of the findings and recommendations, the current Student Information System will be replaced. HCPSS will also implement a data warehouse and a Learning Management System in the fall of 2014. HCPSS have also hired highly skilled staff to implement these initiatives including a Director of Data Management, a Data Warehouse Coordinator, Student Information System Coordinator, a program analyst and two contractors. While these systems are not currently in place, the additional staffing has allowed us to generate dashboards, SIP data files and data sets to support the data dives and data analysis at the school level.

HCPSS will continue to allocate time for data discussions and analyses during Leadership I and II Meetings when appropriate. HCPSS will also formalize data literacy trainings to build the capacity of administrators, leadership team members and teachers.

Staff in the research office will explore other data, especially at the elementary and middle school levels to review benchmarks.

Case Study: Pittsburgh Public Schools

Agency Profile

Pittsburgh Public Schools (PPS) serves 24,500 students across 54 schools, nine of which include high school grades. Seventy-one percent of all students in the district are eligible for free or reduced-priced lunch and 20% receive special education services. Fifty-four percent of students are black, 34% are white, and 12% are other/mixed races. Three-thousand employees, including approximately 1,600 teachers, serve those 24,500 students.

PPS is nationally renowned for its innovative initiatives to improve teacher effectiveness and to make postsecondary education financially affordable to all students through its Empowering Effective Teachers (EET) grant (project funded by the Bill and Melinda Gates Foundation and the United States Department of Education) and through its partnership with The Pittsburgh Promise, respectively. Additionally, PPS has participated in the College Readiness Indicator Systems (CRIS) project since 2010. This project—funded by the BMGF and administered by the Annenberg Institute for School Reform at Brown, the John Gardner Center at Stanford, and the University of Chicago Consortium on Chicago School Research—is designed to support districts, schools, and teachers identify the best predictors of college readiness and to establish a framework for responding to those indicators.

The CRIS project provided funding for Peter Lavorini to participate in the Strategic Data Project as an Agency Fellow. His position as Project Manager – College and Career Readiness was situated within the Office of Student Support Services. PPS had two additional fellows funded by the EET project who were a part of the Office of Teacher Effectiveness: Tara Tucci (Data Fellow) and Ashley Varrato (Agency Fellow). Additionally, CRIS funds were used to hire Kyle Siler-Evans, to direct research associated with the policy and research questions outlined below.

Background and Research Questions

Since 2008, when both the EET and the Promise officially launched, PPS has focused on ensuring that every student graduates from high school with at least a 2.5 GPA and 90% attendance rate in order to receive the full Pittsburgh Promise Scholarship: \$40,000 to attend a college or trade school anywhere within the state. While 800 students have graduated with a postsecondary degree using Promise funding since its launch, PPS is far from meeting its stated goal of all children attaining a postsecondary degree or workforce certification, as stated in its 2013 “Whole Child, Whole Community” strategic plan. Indeed, the percentage of graduates qualifying for the Promise has remained stubbornly low since 2008 (~52% of each class) and the gap between the percentage of white students graduating eligible

compared to black students (~74% to ~34%) remains very large. Not surprisingly, college enrollment, persistence and graduation rates have mirrored these Promise eligibility figures, as only ~52% of graduates enroll in college on time in a given year and less than ~25% of graduates end up graduating with a postsecondary degree (appendix C-1).

Participation in both the CRIS project and the SDP Fellowship has allowed PPS to focus on researching which data provides the strongest predictors of college enrollment and persistence and to determine the most impactful way of responding to those predictors. At the same time that the SDP and CRIS projects were underway, PPS was also investing in a new data warehouse and reporting platform and was eager to maximize its utility to determine where to leverage its limited resources to achieve the greatest impact. The following questions were addressed across these projects:

1. What are the strongest, most actionable indicators of student success in college?
2. What is the best way to share indicators of college readiness with teachers, principals, counselors, students, and families/community partners so that they can respond in a timely and effective way?
3. What strategies can schools and districts leverage to improve student GPA and attendance rates?
4. What impact does effective teaching have on college readiness?

Using National Student Clearinghouse data and all of the student outcome/demographic data available to the CRIS team, it was determined that GPA and attendance are the strongest predictors of postsecondary enrollment and persistence, followed by enrollment in AP coursework. Access to this data also provided PPS leadership with descriptive information regarding the trends in college enrollment, persistence and completion across schools, gender, racial, and socio-economic subgroups for the first time. These rates, and the disparities between subgroups, were disappointing, at best, and the initial presentation of those rates by the SDP Fellows helped PPS leadership (i.e. the Superintendent and Deputy Superintendent) better understand the current state of postsecondary success for PPS students. This, in turn, led to increased support from the PPS leadership for the CRIS project.

Project Scope and Timeline

The scope of the CRIS project in general and the agency fellow's role in particular changed substantially over the course of the CRIS grant and the SDP Fellowship. When PPS began its CRIS project in 2010, it was designed to address a large number (8–9) of indicators of college readiness, without any internal validation of those indicators. Based on lessons learned through SDP, however, the project was

re-scoped in 2012 to: 1) invest in determining which indicators of college readiness are the most predictive of postsecondary success, 2) help build the capacity of PPS staff to analyze those indicators, and 3) craft a strategy to respond to the most predictive indicators of postsecondary success.

To determine the strongest predictors of postsecondary readiness, PPS looked at the postsecondary enrollment, persistence, and completion rates of graduates from three cohorts (2005–06, 2006–07, and 2007–08). It was determined that, among all student achievement, course taking, and behavior measures, GPA and attendance were the strongest predictors of postsecondary readiness both individually and especially when combined into a single measure. Based on the successful outcomes of the combined cohort, Lavorini and Siler-Evans created thresholds for indicating postsecondary readiness (see Figure 1). Perhaps surprisingly, these thresholds remained constant throughout Grades 9 through 12.

Figure 1: Postsecondary Readiness Thresholds

Category	GPA		Attendance
College-Ready	3.0	AND	95%
Graduation-Ready	2.5	AND	90%
At-Risk	2.0	AND	80%
Critical	<2.0	OR	<80%

This research also allowed for a change in conversation regarding the importance and definition of “attendance” within PPS. As mentioned previously, eligibility for The Pittsburgh Promise is based on a cumulative high school attendance rate of 90%. When calculating that attendance rate, however, the Promise only considers suspensions and unexcused absences as “absences”, meaning excused absences (e.g. illnesses, field trips, etc.) are not counted against a student. PPS’ research (appendix C-2) into the impact of attendance on postsecondary success, however, showed that all absences, regardless of the cause, adversely affect a student’s later success. Though preliminary, initial research also indicated that participating in an AP course also leads to greater postsecondary persistence, regardless of performance within that class. Given the major investment that PPS has already made in expanding AP enrollment and course offerings, however, it was decided to not invest more time exploring the impact of AP.

Project Scope: Building Capacity for Using the Indicators

In focusing on attendance and GPA, PPS' most pressing priority was capacity-building for using these indicators. After the SDP Fellows conducted an audit of school level and central office staff's perceptions of data use, their systems and structures for data use, and the types of analytic reports made available to them, PPS' three SDP Fellows established a new team called the Strategic Information Support Team (SIST) which provided professional development to principals and teachers on processes for data review, based on the CRIS Cycle of Inquiry (COI) framework. SIST also worked with the district's executive leadership to establish protocols for monitoring and responding to school performance indicators, such as assessment results. Once these foundations for responding, reviewing, and analyzing data were laid, Lavorini and Siler-Evans moved forward with creating a new series of reports related to the GPA and attendance thresholds that were established as being predictive of postsecondary success. These new reports (appendix C-3) were structured to provide teachers with a roster-style view of their students' postsecondary readiness (both current and longitudinal) and principals, counselors, and school leaders with a summary view of postsecondary readiness of all students within the district or school (all reports can be viewed by subgroup as well). This allows executive leadership to prioritize support to schools and to help guide teacher and principal intervention with students.

Leveraging these and other new reports, such as the At-Risk Attendance reports, Lavorini also initiated a new district- and community-wide initiative to improve attendance. The "Be There!" campaign is a joint venture of PPS, the United Way of Allegheny County, and other community partners and was started as a response to the analysis presented by Lavorini that showed the impact of regular (90% or higher) attendance on postsecondary success and the current state of attendance within PPS. The campaign focuses on creating a sense of urgency around improving attendance within schools, communicating the importance of attendance to families and students, and providing professional development to school staff and parents on best practices for improving attendance. Critical among these best practices has been the establishment of a cycle-of-inquiry model to review and respond to attendance data, both at the individual student and at the school level. Lavorini led a series of professional development sessions on accessing, manipulating, and interpreting the newly developed At-Risk Attendance reports and worked individually with principals and school communities to establish appropriate COIs for their schools.

Challenges and Impact

Most of the challenges to this project came from the organizational structure of PPS itself. The SDP Fellows' roles and responsibilities were not naturally aligned to support each other, and the department that Lavorini and Siler-Evans were a part of (the Office of Student Support Services) was not central to the support of schools, which made it very difficult to find time to spend with principals and school staff to help support their efforts to review, analyze, and act upon the postsecondary readiness indicators. Additionally, the professional development and technical requirements of the rollout of the new measures of teacher effectiveness made it challenging for principals and central office staff to find the bandwidth and capacity to focus on these measures of postsecondary success. Competition for teacher, principal, and district leadership time and attention made it very difficult to do the in-depth training and support that would have made this project more successful.

Despite these challenges, this project has led to a more intelligent, researched conversation and understanding of what it means for the students of Pittsburgh to be ready for college and career success. Prior to the project, most decisions regarding school performance (e.g. support models, accountability, etc.) were based on assessment results that were not proven to be meaningful measures of later success. Armed with the analysis and tools developed by Lavorini and Siler-Evans, principals, teachers, and school communities are now instead focusing on more predictive measures of postsecondary readiness such as GPA and attendance. Principals are being asked to include specific plans to improve GPA and attendance within their School Improvement Plans for the first time, and PPS central office staff are expanding their support model to include GPA and attendance in addition to curriculum.

Appendix A: Ohio Department of Education

Defining Prepare for Success

Starting with the 2014 Report Cards, Ohio Revised Code ([3302.03](#)) specifically requires the Ohio Department of Education to report on the following:

- Percentage of students participating in advanced placement classes and the percentage of those students scoring three or better on advanced placement exams;
- Number of students earning at least three college credits through Advanced Standing programs (i.e., Dual Enrollment, Postsecondary Enrollment Options (PSEO));
- Percentage of students who have taken a national standardized test used for college admission determinations and the percentage of those students determined to be remediation-free based on said test;
- Percentage of students who receive industry credentials;
- Percentage of students participating in an International Baccalaureate program and the percentage of those students scoring four or better on the International Baccalaureate exams; and
- Percentage of students who receive an honors diploma.

Beginning in 2016, Ohio Revised Code requires that these individual measures are combined to create the Prepared for Success graded measure on Ohio's Report Card.

Finally, in addition to the data points listed above, Ohio Revised Code requires the department to report on related postsecondary measures. These measures include:

- Percentage of students who enroll in college within two years of high school graduation;
- Percentage of students who complete a two- or four-year degree within six years of high school graduation;
- Percentage of students who enter college requiring development (i.e., remediation) coursework;
- Percentage of students who enlist in the military;
- Percentage of students who are employed after graduation; and
- Percentage of students who complete a career-related Work-Based Learning Program or a career-related Capstone Project.

Ohio's Report Cards

Beginning with the 2014 Ohio Report Cards, Ohio's Prepared for Success measures will be reported for school districts, traditional public schools and charter schools. These measures are available to the public on the Ohio Report Cards website: <http://reportcard.education.ohio.gov>.

Because Ohio's graduation data is lagged to allow districts to report summer graduates, the 2014 Prepared for Success page includes data for the class 2013. The data on the left side of the page tells the

public what percent of the class of 2013 participated, for example, in the ACT and what percent of the class of 2013 scored remediation free on the ACT. When the Prepared for Success page is complete, the right side of the report will include postsecondary outcome information.

Prepared for Success

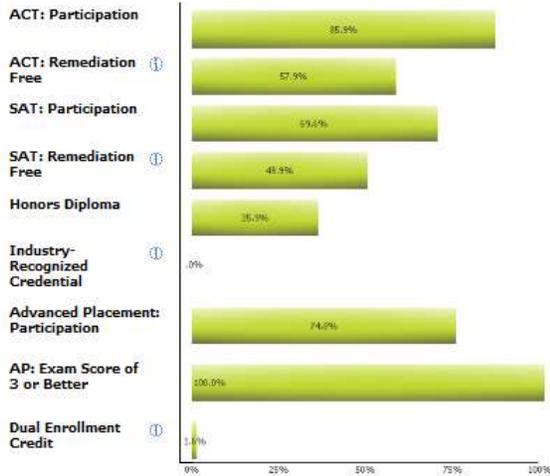


This grade answers the question – Are students who graduate from your district ready for college or a career? There are many ways to show that graduates are prepared.

COMPONENT GRADE

Coming in
2016

How Prepared was Your 2013 Graduating Class?



Note: These data represent students in the 4-year graduation rate, i.e. students who entered 9th grade in 2010.

Outcomes after High School Graduation

Districts and schools have long-term impacts on student outcomes. The Prepared for Success component provides information on how schools prepare students for different pathways of college and career success. It also provides insights on how those students do once they leave high school. What happens beyond the diploma is an important indicator of how well schools are preparing students.

The University System of Ohio provides [district reports](#) on enrollment and remediation of high school graduates attending in-state, public colleges and universities.

Additional data on outcomes after high school are coming soon. These will include college graduation, demographics of college enrollees, workforce and military enlistment.

Appendix B: Howard County Public Schools

Study Population

The participants for this study consisted of the HCPSS graduating classes of 2011 and 2012. This study included first-time ninth grade students who completed high school with a diploma in four years. Only students who remained in high school all four years were included in this study. Therefore the final sample consisted of 6,278 students. Students' gender, race/ethnicity, participation in Free and Reduced-price Meals System (FARMS, a proxy for poverty), special education, and English for Speakers of Other Languages (ESOL) services were based on the school district's records as reported at the end of the graduating year.

Measures

Outcome Measures:

SAT Test Score. The SAT is a norm-referenced college entrance examination that is used by colleges and universities to assess the relative college readiness of their applicants compared with test takers nationwide. SAT scores are reported in increments of 10 on a scale of 200 to 800 for each of the critical reading, math, and writing subtests. If students took SAT more than once, the highest combined score from a single administration was used for this study because based on the College Board's (2009b) *Score Choice* students have the option to send SAT scores by test date in accordance with the individual college requirement.

ACT Test Score. ACT is a norm-referenced test that measures a student's learning in high school and ability to complete college-level work. The ACT has four sections: English, mathematics, reading, and science with scores ranging from 1 (low) to 36 (high) for each section. If students took the ACT more than once, the highest combined score from a single administration was used for this study. An ACT score of 24 or higher was used as the college readiness indicator. SAT and ACT scores are not statistically equivalent. However, an SAT combined score of 1650 (an average of 550 on each of the three subtests) corresponds to an ACT composite score of 24 (College Board, 2009a). Since some students take only the ACT, this study will use an SAT score of 1650 or higher or ACT score of 24 or higher as a college readiness indicator. Moreover, most colleges now accept either SAT or ACT scores as an indicator of students' academic readiness for college (e.g., Boston College, 2009; Duke University, 2009).

For this study, a binary variable was obtained from the SAT/ACT score data. Students who scored a 1650 or higher on SAT or 24 or higher on ACT were coded as 1. Students who scored below 1650 on SAT or below 24 on ACT were scored as 0.

Enrollment in College Immediately after High School Graduation. The data on college enrollment were obtained from the National Student Clearinghouse (NSC). The NSC is a non-profit corporation that assists higher education institutions in verifying enrollment and degree completion. More than 3,300 colleges participate in the NSC, which constitutes 93% of all student enrollments in post-secondary institutions in the U.S. School districts obtain information about their students' postsecondary

educational outcomes from the NSC. For more information on the NSC see www.studentlearninghouse.org. Immediate enrollment is defined as high school graduates enrolling at any postsecondary institution immediately in the fall after high school graduation. For this study, a binary variable indicating whether a student enrolled in a postsecondary institution immediately after high school graduation was used (1 = enrolled in a college; 0 = did not enroll in a college immediately after high school).

Independent Measures:

The variables used for this study were selected based on research literature and data available from HCPSS (Table 1).

AP Exam Score. AP examinations are criterion-referenced assessments that measure student performance in college-level courses. AP exam scores were reported in increments of 1 on scales that ranged from 1 to 5 (College Board, 2006).

Table 1. Variables and Descriptions

Variables	Variable Description
Algebra 1 Course by Grade 8	A binary variable indicating whether a student was enrolled in an Algebra 1 course by the end of Grade 8. 1 = Enrolled in Algebra; 0 = did not enroll in Algebra by end of Grade 8.
Participation in at least one GT course in Grade 9 (proxy for advanced courses)	A binary variable indicating whether a student participated in at least one Gifted and Talented (GT) course in Grade 9. 1= participated in a GT course; 0= did not participate in a GT course.
Grade 10 PSAT \geq 145	1= PSAT score \geq 145; 0 = PSAT score $<$ 145.
AP Course by Grade 11	A binary variable indicating whether a student took at least one AP course by the end of Grade 11. 1 = Took an AP course; 0 = did not take an AP course.
AP Score of 3 or Higher by Grade 11	A binary variable indicating whether a student scored a 3 or higher on at least one AP exam by the end of Grade 11. 1 = Scored 3 or higher on an AP exam; 0 = Scored less than a 3.
Algebra 2 Course by Grade 11	A binary variable indicating whether a student was enrolled in an Algebra 2 course by the end of Grade 11. 1 = Enrolled in Algebra 2; 0 = did not enroll in Algebra 2 by end of Grade 11.

Statistical Procedure:

Logistic regression analyses were conducted to examine research questions 1 and 2. A step-wise logistic regression analyses were conducted to examine research question 3. Logistic regression is a useful way of describing the relationship between one or more independent variables with a binary dependent variable such as “enrolled immediately in college” or “did not enroll immediately in college”. The results of the logistic regression analyses are reported in terms of an odds ratio (OR) and percent change in odds relative to a comparison group.

Research questions:

1. What pattern of course taking and test performance for students in secondary school predicts achieving college-ready scores of a 1650 or higher on the SAT or a 24 or higher on the ACT?
2. What is the likelihood of students who achieve college-ready scores enrolling in a postsecondary institution immediately after high school graduation?

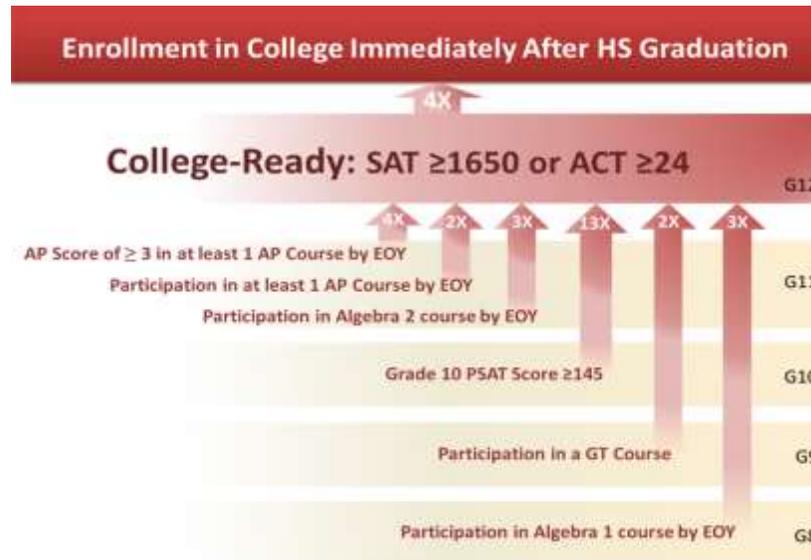


Figure 1. High School Indicators of College Readiness and Fall College Enrollment (in odds ratio)

Of the variables that had a significant relationship to college readiness, scoring 145 or higher on the Grade 10 PSAT was the strongest predictor of college readiness. Other strong predictors of college readiness included scoring a 3 or higher on at least one AP exam by the end of Grade 11, completion of Algebra 1 by the end of Grade 8, completion of Algebra 2 by the end of Grade 11, participation in at least one GT course in Grade 9, and participation in at least one AP course by the end of Grade 11.

For example, students who scored 145 or higher on the PSAT during Grade 10 were 13 times more likely to be college ready than students who scored less than 145 on PSAT in Grade 10. Additionally, high school graduates who were college ready (scoring SAT 1650 or higher or ACT 24 or higher) were 4 times more likely to enroll in college immediately after high school.

Research question:

3. Is there a gap in college readiness by race/ethnicity or socioeconomic status and does that gap reduce as rigorous course taking and test performance is added to the model?

Step-wise logistic regression analyses were conducted to examine if the racial/ethnic gap narrowed after course rigor and test performance were entered as part of the model. Model 1 in Figure 2 indicates that when only race/ethnicity and FARMS status was entered in the model there was a wide gap in the probability of being college ready across racial/ethnic groups. For example, the probability of being college ready for Black/African American graduates was 28% whereas for Asian graduates the probability was 69%.

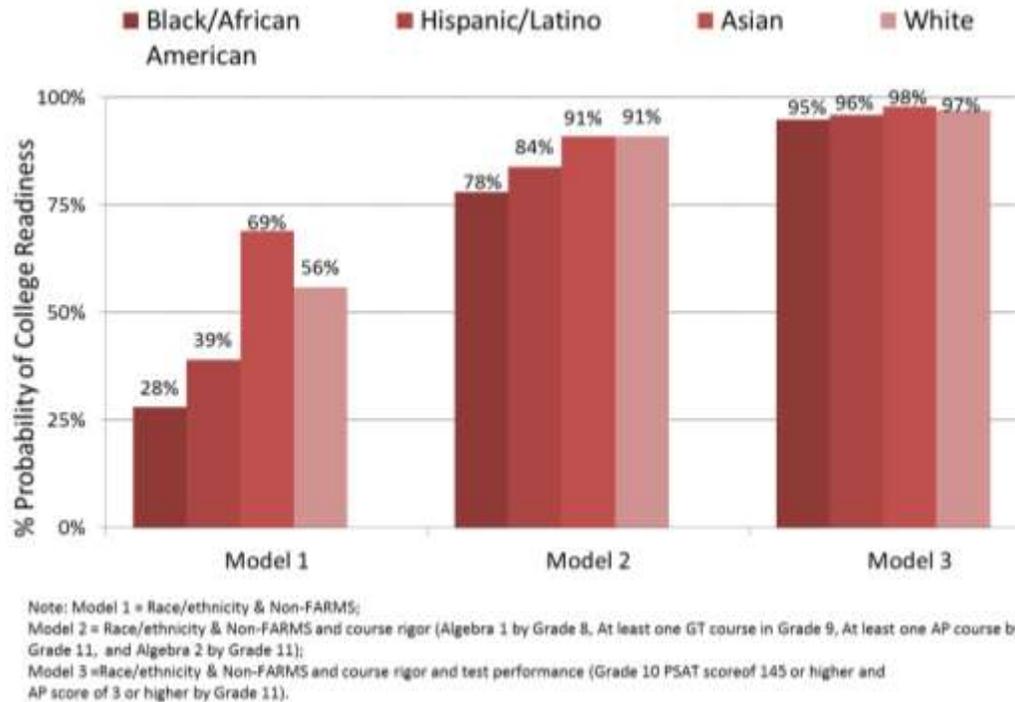
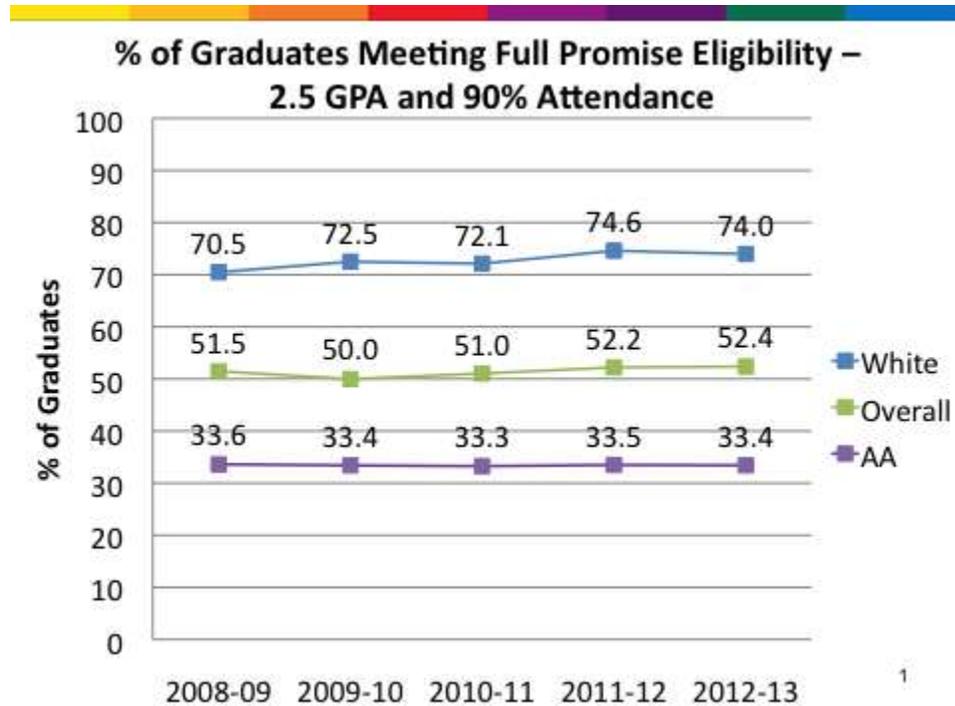


Figure 2. Step-wise Logistic Regression on the Probability of College Readiness

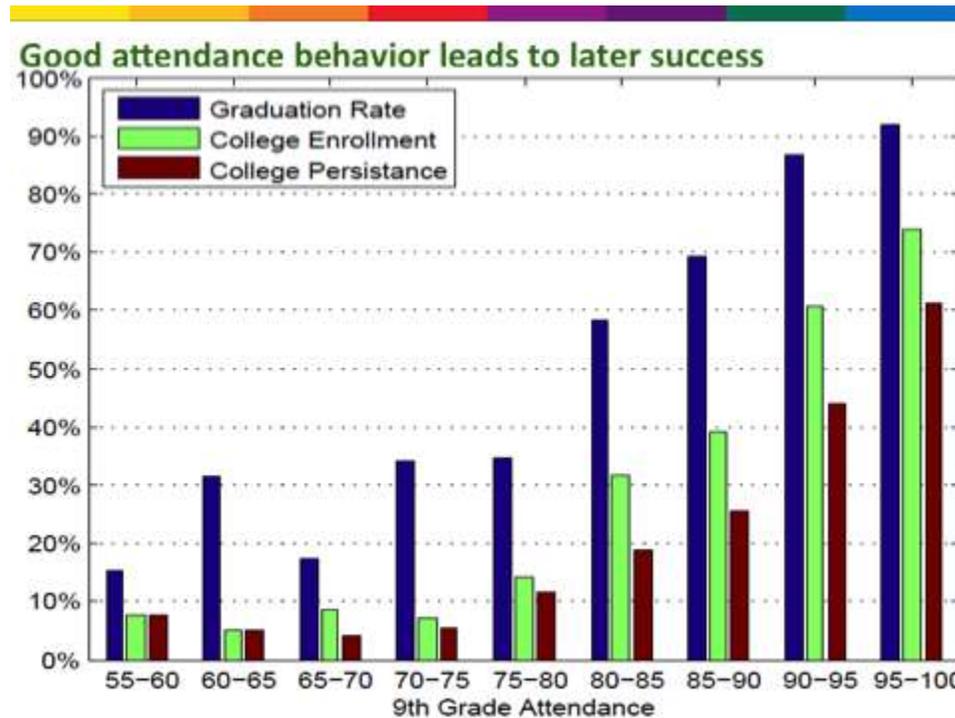
Models 2 and 3 were simply additive in their number of variables; that is, no variables were rotated out of the model, new additional variables were added in, retaining any variable/s that were in the prior model. Thus, in model 2, in addition to race/ethnicity and non-FARMS status that were in Model 1, course rigor was added to the model. The results showed that there was a significant increase in the probability of being college ready across all racial/ethnic groups. Adding course rigor to the model narrowed the gap in the probability of being college ready across racial/ethnic groups. For example, the probability of being college ready increased from a 28% to 78% for Black/African American non-FARMS graduates. Model 3 included test performance (Grade 10 PSAT score of 145 or higher and at least one AP score of 3 or higher in Grade 11) which further increased the probability of being college ready significantly, especially for Black/African American non-FARMS graduates. For example, the probability of being college ready increased from a 78% to 95% for Black/African American non-FARMS graduates when test performance was included in the model. These findings indicate that the demographic factors do not matter if students are enrolled in rigorous courses and are provided the support necessary to excel in these courses.

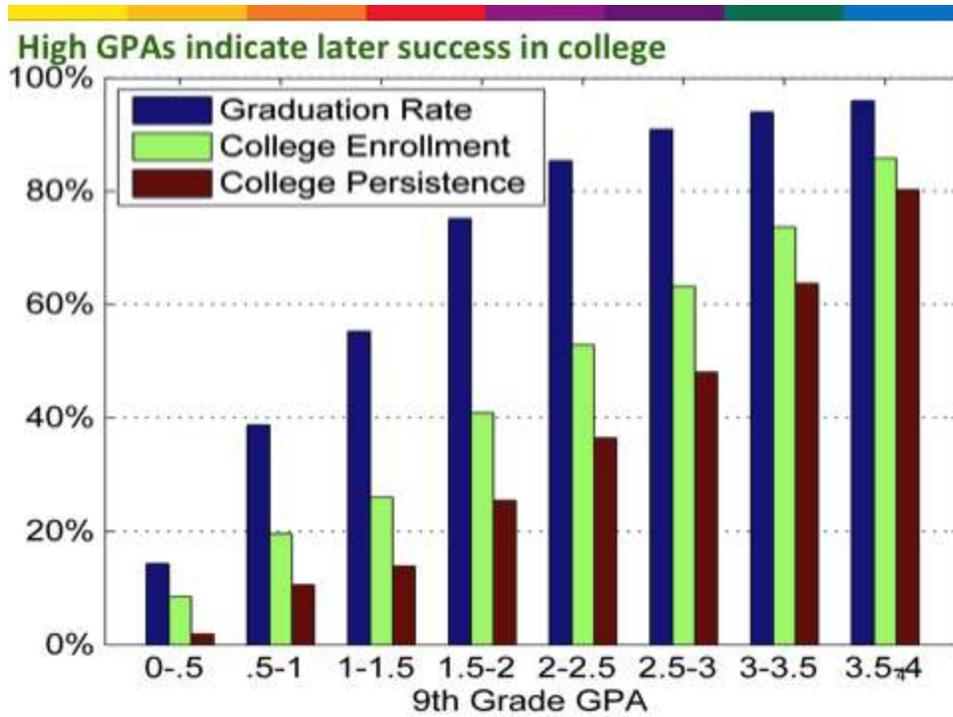
Appendix C: Pittsburgh Public Schools

1. Percentage of students meeting eligibility for The Pittsburgh Promise



2. GPA and Attendance Predicting Postsecondary Success





3. College Readiness Indicator Reports- Teacher Roster and Executive Summary

Pittsburgh Public Schools | 2013-14 | The Pathway to the Promise™

College Readiness Indicator Report - Teacher Roster

School Year: 2013-14 | School: Altamont High School

Teacher Information: Name: Aikin, Jeremy

Legend: College Ready (Blue), Graduation Ready (Green), At Risk (Yellow), Critical (Red)

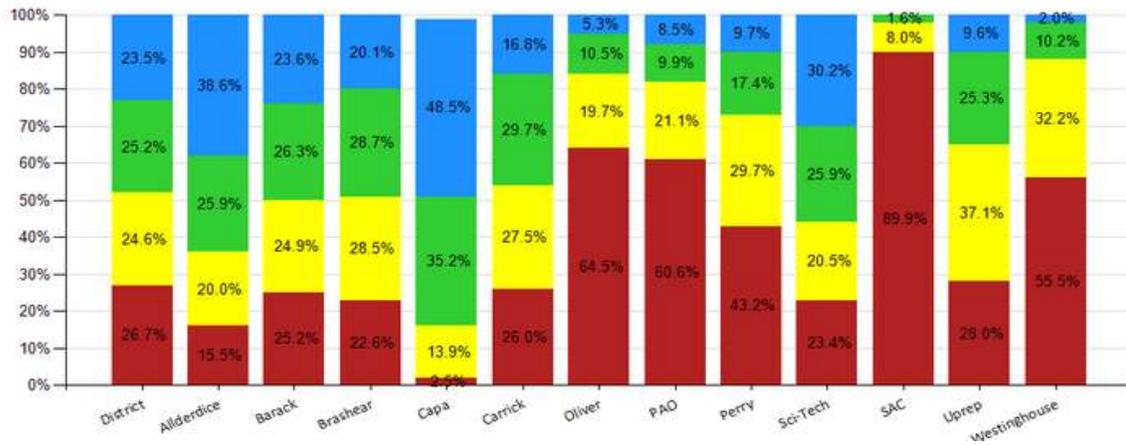
Course Name	Period	Students	Last Name	First Name	Enrolled Grade	Cumulative On Track Status	Cumulative GPA	Cumulative Attendance	Cumulative Risk Area	Year to Date On Track Status	Quarterly GPA	Year to Date Attendance	Year to Date Risk Area	Repeater	Gender	Race	IEP Status
12						At Risk	2.84	80.9	Attendance	At Risk	2.80	88.9	Attendance		Female	White	
12						At Risk	2.56	86.4	Attendance	At Risk	2.43	80.4	Both		Female	White	
12						Graduation Ready	3.08	93.9	Attendance	At Risk	3.20	94.7	Attendance		Female	White	
12						College Ready	3.80	97.5		College Ready	3.55	98.3			Male	White	Gifted
12						Critical	2.24	75.4	Attendance	At Risk	2.41	87.4	Attendance		Female	African American	
12						At Risk	2.17	85.1	GPA	College Ready	3.14	95.5			Male	African American	
12						Graduation Ready	3.04	95.3	GPA	College Ready	3.80	97.2			Male	African American	
12						College Ready	3.75	98.3		College Ready	3.54	98.3			Male	White	
12						College Ready	3.50	98.9		College Ready	3.75	98.3			Male	African American	
12						College Ready	3.95	98.4		Graduation Ready	2.30	83.2	Both		Female	White	Gifted
12						Graduation Ready	3.36	93.1	Attendance	Graduation Ready	3.33	91.5	Attendance		Female	White	
12						At Risk	2.33	85.5	GPA	Graduation Ready	3.44	94.3	Attendance		Female	Multi-Racial	IEP
09						At Risk	2.40	87.2	GPA	Graduation Ready	2.55	83.8	Both		Male	African American	
10						At Risk	2.67	86.5	Attendance	At Risk	2.80	88.3	Attendance		Male	White	

PPS Insight > College Readiness Indicators

Actions | 1 of 1 | Find Next

The pathway to the promise.

District Information				View YTD Status
Gender	Lunch Type	IEP		Ethnicities
<input type="checkbox"/> Male <input type="checkbox"/> Female	<input type="checkbox"/> Free <input type="checkbox"/> Reduced <input type="checkbox"/> Regular	<input type="checkbox"/> PD <input type="checkbox"/> D/H <input type="checkbox"/> GIF <input type="checkbox"/> OTH	<input type="checkbox"/> NONE <input type="checkbox"/> AUT <input type="checkbox"/> B/V <input type="checkbox"/> NEURO	<input type="checkbox"/> LD <input type="checkbox"/> ED <input type="checkbox"/> MULT <input type="checkbox"/> MR <input type="checkbox"/> S/L
		<input type="checkbox"/> African American <input type="checkbox"/> American Indian <input type="checkbox"/> Asian	<input type="checkbox"/> Hispanic <input type="checkbox"/> Multi-Racial <input type="checkbox"/> White	



References

- ACT. (2004). *ACT national data release*. Iowa City, IA: ACT, Inc.
- Adelman, C. (1999). *Answers in the tool box: Academic intensity, attendance patterns, and bachelor's degree attainment*. Washington, DC: US Department of Education.
- Adelman, C. (2006). *The toolbox revisited: Paths to degree completion from high school through college*. Retrieved from <http://www.ed.gov/rschstat/research/pubs/toolboxrevisit/toolbox.pdf>.
- Bloom-Weltman, J., & Fullerton, J. (June, 2013). *A review of student achievement and participation trends in Howard County Public Schools*. Center for Education Policy Research, Harvard University.
- Boston College. (2009). Frequently asked questions. Retrieved from <http://www.bc.edu/admission/undergrad/process/faq.html#standardized>.
- Bridgeman, B. & Wendler, C. (2004). *Characteristics of minority students who excel on the SAT and in the classroom*. Policy Information Report. New York: Educational Testing Service.
- Burney, V. H. (2010). High achievement on advanced placement exams: The relationship of school level contextual factors to performance. *Gifted Child Quarterly*, 54(2), 116-126.
- Camara, W. (2003). *College persistence, graduation, and remediation*. New York: College Board.
- Checkley, K. (2001). Algebra and activism: Removing the shackles of low expectations: A conversation with Robert P. Moses. *Educational Leadership*, 59, 6-11.
- College Board. (2004b). *Barriers to equity and access*. New York: The College Board.
- College Board. (2004c). *PSAT/NMSQT Summary Report, Maryland, 2003-2004 College bound High School Sophomores*.
- College Board. (2006). *Advanced placement report to the nation*. New York: Author.
- College Board. (2009a). *ACT – SAT concordance tables*. New York: Author.
- College Board (2009b). Score Choice™: New SAT Score reporting policy <http://professionals.collegeboard.com/profdownload/sat-score-choice.pdf>
- Consortium on Chicago School Research (2008). *From high school to the future: Potholes on the road to college*. Retrieved from http://ccsr.uchicago.edu/publications/CCSR_Potholes_Report.pdf
- Cooney, S., & Bottoms, G. (2002). *Middle grades to high school: Mending a weak link*. Research brief. Atlanta, GA: Southern Regional Education Board, 2002.
- DiYanni, R. (2008). *The history of the AP program*. New York: The College Board.

- Duke University. (2009). *Quick facts about Duke University*. Retrieved from http://www.admissions.duke.edu/jump/pdf/Quick_Facts.pdf.
- Fry, R. (2004). *Latino youth finishing college: The Role of selective pathways*. Pew Latino Center Report.
- Hargrove, L., Godin, D., & Dodd, B. (2008). *College outcomes comparisons by AP and non-AP high school experiences*. New York: The College Board.
- Herold, B. (2003). Regional college-going patterns of Philadelphia Public High School graduates: The Role of high school curriculum. *Penn GSE Perspectives on Urban Education 2, 2*.
- Hiss, W. C., & Franks, V. W. (2014). *Defining promise: Optional standardized testing policies in American college and university admissions*. Arlington, VA: National Association for College Admissions Counseling. <http://www.nacacnet.org/research/research-data/nacacresearch/Documents/DefiningPromise.pdf>
- Howard County Public School System. (2013). *Strategic plan, Vision 2018: Fulfilling the Promise of Preparation*. Ellicott City, MD: Author. www.hcps.org/vision.
- Milewski, G. B., & Sawtell, E. A. (2006). Relationships between PSAT/NMSQT® score and Academic achievement in high school. Research Report No. 2006-6. New York: College Board.
- National Center for Education Statistics. (2003, November). *Remedial Education at degree granting postsecondary institutions in Fall 2003*. NCES 2004-010. Retrieved from <http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2004010>
- Proctor, T. P., Wyatt, J., & Wiley, A. (2010). *PSAT/NMSQT® Indicators of College Readiness*. Research Report No. 2010-4. New York: College Board.
- Rethinam, V. (November, 2013). *Postsecondary profile of graduates of the Howard County Public School system (2006-2012)*. Presented internally to the Board of Education, November, 2013. Ellicott City, MD: Howard County Public School System.
- Rethinam, V. *The Howard County Public School System's academic indicators of college readiness*. An unpublished research report. Ellicott City, MD: Howard County Public School System.
- Rethinam, V. (2011). *Grade 9 indicators influencing high school graduation and college readiness in Montgomery County Public Schools*. Rockville, MD: Montgomery County Public Schools.
- Rethinam, V. & Von Secker, C. (2011). *Grade 8 first semester indicators that predict core course completion during grade 9*. Rockville, MD: Montgomery County Public Schools.
- Riley, R. W. (1997). *Mathematics equals opportunity*. White paper prepared by the U.S. Secretary of Education. Washington, DC: U.S. Department of Education.
- Vasavada, N., Carman, E., Hart, B., & Luisier, D. (2010). *Common Core State Standards Alignment RediStep™, PSAT/NMSQT® and SAT®*. Research Report 2010-5A. New York: College Board.

- Wiley, A., Wyatt, J. N., & Camara, W. J. (2010). *The development of an index of college readiness* (College Board Research Report No. 2010–3). New York: The College Board. Retrieved from http://professionals.collegeboard.com/profdownload/pdf/10b_2084_DevMultiDimenRRWEB_100618.pdf
- Zahner, D., Ramsaran, L. M., & Steedle, J. T. (2012) *Comparing alternatives in the predictors of college success*. Paper presented at the Annual Meeting of the American Educational Research Association, Vancouver, Canada.
- Zwick, R. (1999). Eliminating standardized tests in college admissions: The new affirmative action? *Phi Delta Kappan*, 320-324.