

**Evaluation of the High School ACCUPLACER
Pilot Program**

Office of Shared Accountability

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Elizabeth Cooper-Martin, Ph.D. and Julie Wade, M.S.



OFFICE OF SHARED ACCOUNTABILITY

Dr. Susan F. Marks, Acting Associate Superintendent

*850 Hungerford Drive
Rockville, Maryland 20850
301-279-3553*

Dr. Joshua P. Starr
Superintendent of Schools

Dr. Kimberly A. Statham
*Deputy Superintendent of
Teaching, Learning, and Programs*

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Executive Summary

The Office of Curriculum and Instructional Programs asked the Office of Shared Accountability (OSA) to evaluate the High School ACCUPLACER Pilot (HSAP) program. The ACCUPLACER is a group of computer-adaptive placement tests that assess students' college readiness in the three areas of reading, English, and mathematics. Montgomery College, one of the top postsecondary destinations for graduates from Montgomery County Public Schools (MCPS), uses the ACCUPLACER as its placement test. All enrollees at Montgomery College must demonstrate readiness for college-level, credit-bearing courses in reading, English, and mathematics through test scores from the SAT, ACT, or the ACCUPLACER placement test. Students who do not qualify are directed to developmental classes.

During the 2010–2011 school year, nearly 3,500 students from the MCPS Class of 2010 attended Montgomery College. More than 60% of these students needed developmental courses in at least one subject, based on results of the ACCUPLACER placement test. In response to the number of MCPS graduates who required developmental courses, the HSAP program was started in 2009–2010 and expanded to 13 high schools in 2011–2012. The program's goals are to decrease the number of developmental courses required and to improve readiness for college-level courses, among MCPS graduates, by improving students' scores on the ACCUPLACER placement test.

The HSAP program targets students who have identified Montgomery College as their first or second choice for postsecondary studies and who do not have SAT or ACT scores at levels that are considered college ready. To achieve its goals, the program uses the following strategies:

- Increase awareness and understanding of the ACCUPLACER placement test among high school students, their parents, and high school staff.
- Improve student preparation for the ACCUPLACER placement test.
- Administer the ACCUPLACER placement test at each student's high school, instead of at Montgomery College.

The following five components comprised the HSAP program for 2011–2012:

- Component 1: Schools provide information about the ACCUPLACER placement test, including its purpose, usage, and format.
- Component 2: Students complete the ACCUPLACER placement test at their home school in the fall or winter. Students who test college ready exit the HSAP program.
- Component 3: Students who score below the college-ready level on the ACCUPLACER placement test complete the ACCUPLACER Diagnostic tests to identify their weaknesses and strengths in each of the subject areas—reading, English, and mathematics.
- Component 4: Students complete academic interventions in their area(s) of academic weakness using an online resource, ACCUPLACER/MyFoundationsLab.
- Component 5: Students complete the ACCUPLACER placement test at their home school in the spring.

Two questions guided the evaluation study: 1) To what extent and with what quality is each component of the HSAP program being implemented as intended? How consistent is implementation across schools? 2) What is the effectiveness of the key components of the HSAP program, components 1 and 4, with respect to college readiness, as measured by scores on the ACCUPLACER placement test?

Methodology and Findings

The evaluation included all 13 high schools that participated in the HSAP program during school year 2011–2012. These schools targeted 1,293 students to participate in the HSAP program. Data collection included two interviews with staff members familiar with the HSAP program at each school—one in February or March 2012 and one in May 2012, for a total of 26 interviews. Two student surveys were used: one in fall 2011 (completed by 30% of targeted students) and one in spring 2012 (completed by 43% of targeted students). Individual student-level data was downloaded for all ACCUPLACER tests and the MyFoundationsLab intervention.

Findings for Question One: Quality and Consistency of Implementation Across Schools

To summarize the extent of implementation of the HSAP program, we used the following categories with respect to the rate of completion by targeted students:

- Low: one third or less of students
- Moderate: between one third and two thirds of students
- High: two thirds or more of students

To identify students for the HSAP program, nearly all schools used the criterion of student interest in Montgomery College, but the majority did not explicitly consider student performance on the ACT or SAT. Nonetheless, almost all targeted students also met this criterion (i.e., lacked a combined SAT score of 1650 or higher or an ACT composite score of 24 or higher). Thus, the level of implementation for targeting students was considered high.

Component 1 concerned informing students about the ACCUPLACER test. Staff members at all schools reported telling students about the test's key purpose: to determine enrollment in college-level, credit-bearing courses. At most schools, staff members reported sharing some information about the test's format and usage. Thus, implementation of component 1 was fairly consistent across schools. To measure implementation of component 1 at the student level, we examined responses to nine items that assessed students' knowledge about the ACCUPLACER test on the fall student survey. For all but one of the items, the percentage of students who gave the correct answer ranged from 37% to 88%. Hence, the level of implementation for component 1 was categorized as moderate.

Components 2, 3, and 5 each involved test taking. About 40% of targeted students completed component 2, the fall/winter ACCUPLACER placement test. The rate of completion was nearly one half for both component 3—the ACCUPLACER Diagnostic test—and component 5—the spring ACCUPLACER placement test. The level of implementation for components 2, 3, and 5 was considered moderate. Across schools, the rate of completion ranged from 0–99% for

component 2, 6–82% for component 3, and 22–72% for component 5. Therefore, implementation of these components was not consistent across schools.

Component 4 concerned online academic interventions that were available for up to 10 weeks. Only 7% or fewer of targeted students spent 20 minutes or more on interventions for each subject area during this time period, so the level of implementation of component 4 was categorized as low. The percentage of targeted students who spent 20 minutes or more on interventions varied across schools from 0–32%. Therefore, implementation of component 4 was considered inconsistent across schools.

Although 12 of the 13 schools offered every component, only 5% of all targeted students completed components 2, 3, 4, and 5. Based on this rate of completion, we categorized overall implementation of the HSAP program as low.

Findings for Question Two: Effectiveness of Key Components of the HSAP Program

Two analytic approaches were used to study the effectiveness of component 1—providing information about the ACCUPLACER placement test—on ACCUPLACER placement scores and course placement levels. Multiple regressions, which controlled for each student’s previous academic performance and demographic characteristics, tested the relationship of student knowledge to their ACCUPLACER scores. The regression for reading revealed a statistically significant and positive relationship between student knowledge and scores. Correlation coefficients (which did not control for student characteristics) examined the relationship between student knowledge and the recommended course placement at Montgomery College (based on ACCUPLACER scores). The correlation coefficients showed statistically significant and positive relationships between student knowledge of ACCUPLACER and their course placements in reading and in writing. The effect sizes from both analytic approaches were small, indicating that students who knew more about the ACCUPLACER test had better performance (in reading and writing) and that the improvement was small but of practical significance.

The effectiveness of component 4, academic intervention, could not be analyzed. The number of students with no participation in the MyFoundationsLab online intervention was so much larger than the number of students who participated, even minimally, that it was not appropriate to use either analytic approach.

Discussion and Recommendations

This study evaluated two key strategies of HSAP. For the first strategy (i.e., increase awareness and understanding of the ACCUPLACER placement test), there was a moderate level of implementation along with some evidence of this strategy’s effectiveness. However, implementation of the second strategy (i.e., improve student preparation for the ACCUPLACER placement test) was incomplete. Large numbers of targeted students failed to participate at each step of the process: completing the Diagnostic test (which is required to identify areas of weakness), registering for MyFoundationsLab, and logging onto the intervention. Among the students who did utilize MyFoundationsLab, the average time on one subject area was two hours,

which is a modest amount of preparation. Due to the small number of users, we were unable to statistically determine the effectiveness of the second strategy.

The above findings, along with input from students and school staff members about the supports for and barriers to utilizing MyFoundationsLab, suggested the following recommendations. They are presented in order of importance. Because, the weakest area of implementation was student preparation for the ACCUPLACER placement test, the goal of the first five recommendations is to increase the amount of time students spend on MyFoundationsLab.

Increase the number of students who complete the ACCUPLACER Diagnostic test.

- Encourage schools to carefully plan the schedule for completing the ACCUPLACER Diagnostic test; students need several hours in a computer lab with proctors. Be mindful of what else is going on with students (e.g., day off from school, interims).
- Consider omitting component 2, the fall/winter ACCUPLACER test, and strongly encourage schools to implement the other four components. This approach would save time, and, because it includes the ACCUPLACER Diagnostic test, would identify needed interventions and give students experience in taking an ACCUPLACER test.

Increase the number of students who register for MyFoundationsLab.

- Advise schools to have a staff member complete the registration process for students or to carefully supervise students during the registration process and confirm completion. Encourage staff members to explore the vendor's online support for registration.
- Work with the vendor to simplify the registration process and to clarify characters in the code (e.g., letter "O" or the number "0").

Provide more time, structure, and support for students by offering an ACCUPLACER preparation class.

- Provide a for-credit class or other structured opportunity, such as an after school club, Saturday sessions, or a unit within another class, focused on MyFoundationsLab where teachers may support and monitor student's progress and provide review sessions.

Differentiate student supports for MyFoundationsLab based on the results of the fall/winter ACCUPLACER test or the Diagnostics test.

- Offer MyFoundationsLab as an independent study only to students whose scores are close to the cut off or who only have a few topics to review. Support these students with opportunities to work on the intervention before, during, and after the school day and with reminders.
- Focus program resources (e.g., attending classes or review sessions, completing ACCUPLACER Diagnostic) on students who are potentially within reach of the cut off, recognizing that developmental courses in college may be appropriate for students who have too much material to master.

Begin the HSAP program in Grade 11.

- Consider starting the HSAP program during junior year, so that students have more time to remedy their weaknesses.

- Combine the earlier start with differentiation of services (as described above) and an expanded target (as described below). Advise schools that staff members may use High School Assessment (HSA) and Grade 10 PSAT scores to estimate performance on the ACCUPLACER placement test when considering students for the program.
- Emphasize to students that schools other than Montgomery College require the ACCUPLACER (or a similar) placement test and that students should keep Montgomery College as an option, until admissions and financial aid decisions are final.

Continue targeting students.

- Encourage schools to continue current approaches to selecting targeted students.
- Consider expanding the target to all students who lack SAT or ACT scores at the levels that are considered college ready. More than 1,300 postsecondary institutions in the United States, including most Maryland community colleges and state universities, as well as Montgomery College, use the ACCUPLACER as a placement test.

Improve delivery of information about ACCUPLACER.

- Encourage schools to continue informing students about the key purpose of the ACCUPLACER placement test and to put more emphasis on clarifying that Montgomery College does not use ACCUPLACER test scores for other purposes (i.e., award college credit, admissions decisions). Unlike the information about format and rules, students cannot acquire information about the test's purpose by completing it.
- Broaden the availability of information about the ACCUPLACER placement test by encouraging schools to include such information on their websites.

Evaluation of the High School ACCUPLACER Pilot Program

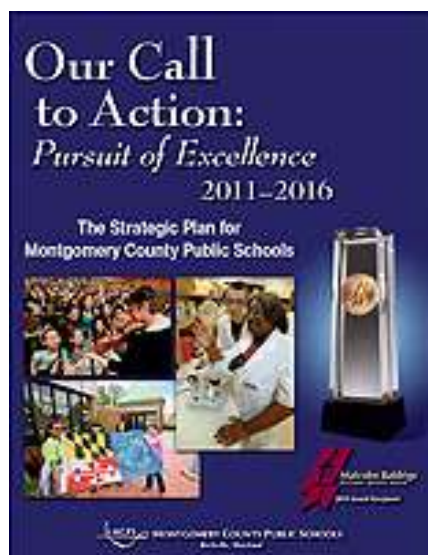
Elizabeth Cooper-Martin, Ph.D. and Julie Wade, M.S.

Background

More than one third of Montgomery County Public Schools (MCPS) seniors enroll in Montgomery College, the top postsecondary destination for MCPS graduates. All enrollees at Montgomery College must demonstrate readiness for college-level, credit-bearing courses in reading, English, and mathematics through test scores from the SAT, ACT, or a placement test. Students who do not qualify are directed to developmental classes. Montgomery College, along with more than 1,300 postsecondary institutions in the United States, uses the ACCUPLACER as its placement test (College Board, 2009).

Developed by the College Board in 1985, the ACCUPLACER is a group of computer-adaptive placement tests that assess students' college readiness in the three areas of reading, English, and mathematics (College Board, 2010). The ACCUPLACER placement test presents one question at a time along with the possible answer choices for that question. The test is not timed, so that students may take as much time as they need.

Nearly 3,500 students from the MCPS Class of 2010 attended Montgomery College during the 2010–2011 school year. Based on results of the ACCUPLACER placement test, more than 60% (2,178; 63%) needed developmental mathematics, nearly one third (1,117; 32%) needed developmental English, and more than one quarter (912; 26%) needed developmental reading (Stetson & Lang, 2011). These figures include 802 students (23%) who needed to take all three developmental courses.



In response to the number of MCPS graduates that required developmental courses, the High School ACCUPLACER Pilot (HSAP) program was started in six high schools in 2009–2010. The program's goals are to decrease the number of developmental courses taken by MCPS graduates and to improve the readiness of MCPS graduates for college-level, credit-bearing courses by helping students to improve their scores on the ACCUPLACER placement test. In its third year (2011–2012), 13 schools participated in the HSAP program.

The HSAP program's focus on increasing college readiness is directly aligned with the strategic plan for MCPS, *Our Call to Action: Pursuit of Excellence 2011–2016* (MCPS, 2011), in which the system's *Framework for Equity and Excellence* is presented. Equity refers to high expectations and access to meaningful and relevant learning for all students so that

outcomes are not predictable by race, ethnicity, gender, socioeconomic status, language proficiency, or disability. Excellence depends on high standards to ensure that all students grow

to their highest level every year and graduate from high school ready for college or a career. The HSAP program also reflects the district's goal to ensure success for every student.

To ensure all students achieve at these high levels, MCPS has identified a series of milestones of academic success (Figure 1), known as the Seven Keys to College and Career Readiness (Seven Keys) (MCPS, 2009). The Seven Keys concern both classwork and the following standardized tests: Maryland School Assessment (MSA), Advanced Placement (AP) exams, International Baccalaureate (IB) exams, SAT, and ACT. Seniors who have not met the seventh key—achieving satisfactory scores on the SAT or ACT—are the students targeted for the HSAP program.

Seven Keys to College and Career Readiness	
1.	Advanced reading levels in Grades K–2
2.	MSA Reading advanced in Grades 3–8
3.	Successful completion of Grade 6 Mathematics in Grade 5
4.	Algebra 1 by Grade 8 with a C or higher
5.	Algebra 2 by Grade 11 with a C or higher
6.	AP exam score of 3 or higher or IB exam score of 4 or higher by Grade 12
7.	SAT combined score of 1650 or higher or ACT composite score of 24 or higher by Grade 12

Figure 1. Seven keys to college and career readiness identified by MCPS.

Program Description

As noted above, the goals of the HSAP program are to decrease the need for developmental courses and improve readiness for college-level courses among MCPS graduates by improving students' scores on the ACCUPLACER placement test. The key strategies to achieve these goals are as follows:

- Increase awareness and understanding of the ACCUPLACER placement test among high school students, their parents, and high school staff members.
- Improve student preparation for the ACCUPLACER placement test through appropriate interventions.
- Administer the ACCUPLACER placement test at each student's high school, instead of at Montgomery College.

It is assumed that if students and other key stakeholders understand the purpose and format of the ACCUPLACER placement test, if students complete interventions in their area(s) of weakness, and if students complete the test in a familiar environment that students will perform better on the ACCUPLACER placement test.

Participating Schools and Students

In 2011–2012, the following 13 high schools participated in HSAP:

- Bethesda-Chevy Chase
- James Hubert Blake
- Damascus
- Albert Einstein
- Richard Montgomery
- Northwest
- Northwood
- Paint Branch
- Quince Orchard
- Rockville
- Seneca Valley
- Watkins Mill
- Wheaton

The HSAP program is targeted to seniors who meet the following criteria:

- Have identified Montgomery College as their first or second choice for postsecondary studies, and
- Are in one or more of the following groups:
 - Have no SAT or ACT scores and no plans to take either test
 - SAT score below 550 on either critical reading or the mathematics section of the test
 - ACT score below 24 on English or mathematics section of the test.

For any student whose first language is not American English and who has been in American schools for less than 10 years, the appropriate test is the ACCUPLACER ESL, instead of the standard ACCUPLACER placement test. Therefore, students currently receiving English for Speakers of Other Languages (ESOL) services are not part of the target for the HSAP program.

Program Components

Figure 2 illustrates the series of components comprising the HSAP program.

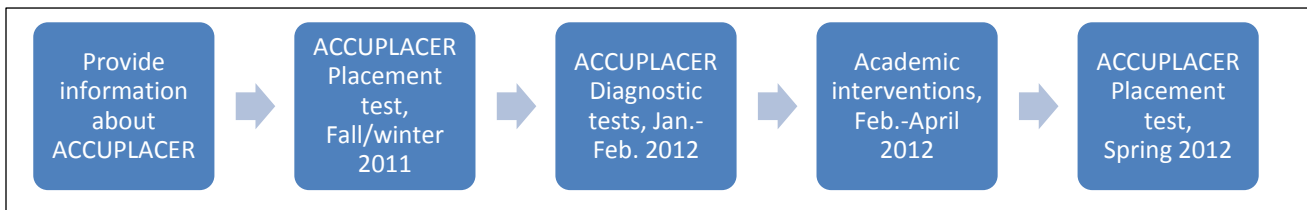


Figure 2. Components of the High School ACCUPLACER Pilot program.

The first component is providing information about ACCUPLACER, including its purpose, usage, and format, to targeted students and their parents. Like the SAT and ACT tests, many institutions (not just Montgomery College) use the ACCUPLACER placement test, but ACCUPLACER scores are not used in admission decisions. The format of the ACCUPLACER placement test differs from other tests and assessments that are more familiar to students. Because the ACCUPLACER placement test is a computer-adaptive test, student response to an item determines the next one; therefore, students cannot skip any questions or return to any

earlier questions, and students may take as much time as they wish. Also, students need to be aware that Montgomery College, along with some other institutions, does not allow test takers to use a hand-held calculator to answer the mathematics questions. Other important information for parents and students concerns the requirements at Montgomery College for enrolling in college-level courses, the possible need for and cost of developmental classes at Montgomery College, and details about HSAP and its benefits. Providing information to students was expected to occur during the first semester of the 2011–2012 school year.

The second component is the ACCUPLACER placement test, which students complete at their home school. The results of this test determine the next step. The ACCUPLACER placement test assesses five areas: reading comprehension, sentence skills, arithmetic, elementary algebra, and college-level mathematics. ACCUPLACER placement scores range from 20 to 120. The required scores to be eligible for college-level, credit-bearing courses at Montgomery College are 62 for elementary algebra, 79 for reading (i.e., reading comprehension), and 90 for writing (i.e., sentence skills). If a student demonstrates college readiness in each subject area by meeting the requirements of Montgomery College, the student does not participate in additional components of HSAP and may opt to take a college course during the spring semester, through concurrent enrollment. Students who do not achieve the required score in one or more subject areas are expected to participate in the remaining components of the HSAP program. Students were expected to take the ACCUPLACER test during the fall semester of the 2011–2012 school year.

ACCUPLACER Diagnostic tests, which are separate and distinct from the ACCUPLACER placement test, are the third component of the HSAP program. The ACCUPLACER Diagnostic tests identify student weaknesses and strengths in the subject area assessed. These tests are adaptive and untimed in order to “drill down” in subject areas to identify specific gaps in skills. Students were expected to complete the Diagnostic tests during January or February 2012.

The fourth key component is working on appropriate academic intervention in the area(s) of weakness identified by the ACCUPLACER Diagnostic tests. For 2011–2012, the intervention was ACCUPLACER//MyFoundationsLab, an online resource that provides tutorials, instruction, practice, and immediate feedback. Students received a personalized set of learning modules, which they could complete on any computer with an Internet connection, at any time of day. A staff member at each school was assigned to monitor each student’s progress and provide encouragement, support, and tutoring, as necessary. Students were expected to complete the interventions between February and April 2012.

The final component is taking the ACCUPLACER placement test at the student’s home school instead of on the Montgomery College campus. Montgomery College agreed to accept results from students whose scores met its criteria. Students were expected to complete the second ACCUPLACER placement test in spring 2012.

Literature Review

College Readiness

Conley (2007) proposed that college readiness is a multifaceted construct with four components: 1) key cognitive strategies, 2) key content knowledge, 3) academic behavior, and 4) contextual skills and awareness. Key cognitive strategies include critical thinking, reasoning, problem solving and “intellectual openness.” Key content encompasses academic skills for writing and research as well as knowledge and skills in the following content areas: English, mathematics, science, world languages, social studies, and arts. The third component—academic behavior—refers to self-monitoring, self-control, and study skills (e.g., time management, communicating with teachers). Self-monitoring allows students to work independently and transfer learning to new settings. Lastly, contextual skills and awareness refer to the ability to understand the university system and its processes of application, admission, financial aid, placement, and curriculum. More recently, Conley (2012) has argued that standardized tests (such as placement exams) at best only measure two of the four components of college readiness: key cognitive strategies and key content knowledge.

Building on Conley’s model, Zhao and Liu (2011) constructed measures of both the academic knowledge and the academic behavior components of college readiness for their study of postsecondary educational outcomes for 2003 graduates of MCPS. They found that both measures were related to the time needed to attain a bachelor's degree; specifically, the more ready a student was academically and behaviorally, the fewer months it took to complete a bachelor’s degree.

Placement Exams

All colleges sort students; four-year colleges do so prior to admission when they admit or reject students; while two-year or community colleges, which are open-access, sort students after admission for course placement. Further, while four-year colleges usually examine multiple measures (e.g., transcripts, test scores, activities) for admissions, community colleges typically only use placement scores as they sort students into college-level versus developmental courses (Safran & Visher, 2010).

Nearly all two-year American institutions of higher education (92%) administer placement exams to determine the need for developmental courses (Parsad, Lewis, & Greene, 2003). The two most commonly used placement exams are the ACCUPLACER (from the College Board) and the COMPASS (from ACT, Inc.). In a study of placement results for more than 250,000 students at 57 community colleges across the United States, nearly six out of ten students (59%) were directed to developmental mathematics courses, and one third were directed to developmental English courses (Bailey, Jeong, & Cho, 2010). However, almost one third of students referred to developmental courses never enrolled, and an additional group of students (about 10%) assigned to a series of developmental courses did not complete the series. Clearly, some students are discouraged by placement into developmental classes and may leave college (Deil-Amen & Rosenbaum, 2002). Because developmental courses require tuition, time, and

effort from students; lengthen the time to graduate; and discourage some students from staying in college, these placement tests may be considered “high stakes.”

It appears that students are not aware of the “high stakes” nature of these tests. As part of a study of policies and practices related to assessment and placement, Venezia, Bracco, and Nodine (2010) conducted focus groups with 257 students at five California community colleges about their assessment and placement experiences. In general, students were uninformed about the placement tests and not prepared for their content and format. Further, most students did not understand that the results of these assessments would determine which classes they would be allowed to take; many did not realize that their performance would affect whether they would receive college credit for their classes.

Bailey (2008) reviewed the research on the effectiveness of developmental education and concluded that there is not reliable evidence for the effect of remediation. Across the three most definitive studies, two suggested students get few benefits from developmental classes, while one study showed some positive results. As noted above, one problem is that many students do not complete the recommended sequence of developmental courses.

A study by Scott-Clayton (2012) suggested that placement exams are weak predictors of college success. Drawing on the work of Kane (2006), she argued that the validity of placement tests must go beyond the relationship between test scores and desired outcome (e.g., college course performance). She concluded that it is necessary to show that students gain the desired knowledge and skills from developmental courses. Using a sample of more than 42,000 first-time entrants to a large, urban community college system, she found that the COMPASS placement tests were more predictive of success in mathematics than in English. More specifically, the percentage of students predicted to be accurately placed was higher in mathematics (58% versus 43% using a grade of C as the criterion of success) than in English, while the “severe error rate” was lower in mathematics than in English (24% versus 33%). The severe error rate included students placed into college-level courses, but predicted to fail there and students placed into remediation although predicted to earn a B in the college-level course. Further analysis showed that using a student’s high school grade point average to make placement decisions improved the outcomes (particularly in English), compared to using placement test scores alone.

In a synthesis of recent research on placement exams for college students, Burdman (2012) proposed a new “narrative” about these exams which includes the following elements:

- Placement tests are high-stakes tests.
- The effectiveness of developmental courses in college has not been clearly established.
- Placement exams are poor predictors of student success in early college courses.
- Standard assessments for mathematics and English do not assess all aspects of college readiness and include some skills that many college students do not need.

In response to this changing view, some school systems are creating college-readiness tests and courses in high schools. This approach reflects the theory that such tests send a signal to high schools about what preparation students need (Kirst & Venezia, 2005). For example, in

California, the eleventh-grade standards test includes questions that assess college readiness. The goal was to give students information about their college readiness, while there was still time to catch up. Similarly, the state of Florida requires all juniors with certain scores on the eleventh-grade standards test to take the placement exam for community colleges. Both states use the results of the eleventh-grade assessments to identify students for courses that prepare them for college.

Burdman (2012) also reported on a college in California that offered an online orientation for its placement exam. The orientation addressed the following topics: the content and format of the exams, ways to prepare for the exams, the reasons for the exams, and the benefits of preparation. The college reported that students who did prepare for the placement exams were more likely to place into college-level courses than students who did not prepare.

Evaluation Questions

This evaluation examined both the fidelity of implementation of the HSAP program, as well as the effectiveness of its key components. The goal was to provide feedback to the program staff members for the purpose of improving the HSAP program and its implementation. The following questions guided the evaluation study.

1. To what extent and with what quality is the HSAP program being implemented as intended? How consistent is implementation across schools? Areas to investigate include the following:
 - Who are the students targeted for the HSAP program?
 - What are the demographic and academic characteristics of the targeted students?
 - What is the test history (PSAT, SAT, ACT) of the targeted students?
 - What information about the ACCUPLACER placement test do targeted students receive?
 - Are schools providing information to all targeted students?
 - What information are schools providing, and in what format?
 - What information are targeted students learning about the ACCUPLACER placement test?
 - Did each targeted student complete the ACCUPLACER placement test in the fall at his/her high school?
 - Did each targeted student (as identified by ACCUPLACER placement test score) complete the ACCUPLACER Diagnostic tests?
 - In what interventions are targeted students participating? Does participation differ by subgroup?
 - Is each targeted student participating in an appropriate intervention? An appropriate intervention is defined as one in his/her area(s) of weakness, as identified by the ACCUPLACER Diagnostic tests.
 - What is the extent of each student's participation in appropriate interventions?
 - What are supports for and barriers to full student participation in appropriate interventions?
 - Did each targeted student complete the ACCUPLACER placement test in the spring at his/her high school?
2. What is the effectiveness of the key components of the HSAP program, components 1 and 4, with respect to college readiness, as measured by scores on the ACCUPLACER placement test? Areas to investigate include the following:
 - How does student knowledge about the ACCUPLACER test affect their scores on the ACCUPLACER placement test?
 - How does participation in interventions affect student scores on the ACCUPLACER placement test?

Methodology

Targeted Schools and Students

The evaluation included all 13 high schools that participated in the HSAP program during school year 2011–2012. Each school submitted a list of targeted students; the total number of targeted students across all schools was 1,293.

Data Collection Activities

Staff Interviews

The principal at each school identified a staff person who was familiar with the pilot at that school. The contact person at each school was interviewed in February or March 2012 about what information was provided about the ACCUPLACER placement test, to whom, and in what format, for a total of 13 interviews.

At the end of the pilot, in May 2012, the monitoring teacher completed an interview about supports for and barriers to full student participation in appropriate interventions. At some schools, the contact person for the evaluation study also joined this interview. A total of 13 interviews were completed in the spring.

Student Surveys

A short online survey was used to assess students' knowledge about the purpose, usage, and format of the ACCUPLACER placement test. The survey, along with other background questions, was presented to students when they took the ACCUPLACER placement test for the first time in fall or winter 2011. This survey was completed by 384 targeted students, 30% of all targeted students. As detailed in the results, the majority of targeted students did not complete a fall/winter ACCUPLACER placement test and therefore, did not have the opportunity to complete this survey.

Students had the opportunity to complete the survey about their knowledge of the ACCUPLACER placement test a second time, after taking the ACCUPLACER placement test in spring 2012. This survey also included questions about experiences with the ACCUPLACER//MyFoundationsLab intervention. A total of 553 targeted students, 43% of all targeted students, completed the second survey. An additional 130 students completed this survey; to provide more feedback about the MyFoundationsLab intervention, the analysis included their responses.

Data Extraction

OSA researchers downloaded individual student-level scores from the ACCUPLACER placement tests completed in fall or winter 2011 and in spring 2012 and the ACCUPLACER Diagnostic tests. OSA researchers also downloaded individual student-level data, including

elapsed time, from the online ACCUPLACER//MyFoundationsLab intervention. The following student test scores and characteristics also were downloaded from MCPS databases for each student: ACT score, SAT score, Preliminary SAT (PSAT) score, gender, receipt of Free and Reduced-price Meals System (FARMS) services, receipt of English for Speakers of Other Languages (ESOL) services, receipt of special education services, and race/ethnicity. For race/ethnicity, students were classified in mutually exclusive categories as follows. If a student checked Hispanic, the student was classified as Hispanic/Latino for race/ethnicity. If a student did not check Hispanic, then the student was classified according to the racial code checked from the following list: American Indian, Asian, Black or African American, Pacific Islander, White, and Two or More Races.

Analysis

Descriptive statistics were used to analyze the findings for evaluation question 1 on implementation. To examine whether participation in the intervention, MyFoundationsLab, differed by student subgroup, χ^2 tests were used.

To address evaluation question 2 on the effectiveness of key components of the HSAP program, two analytical approaches were used. The first approach—multiple regressions—examined whether each key component of the HSAP program had a significant relationship with student scores on the ACCUPLACER placement test, while holding student characteristics constant. The second approach—correlation coefficients—examined whether each key component of the HSAP program had a significant relationship with the course level recommended at Montgomery College, based on the student's ACCUPLACER scores. Each approach included both statistical significance tests and effect sizes. The former indicated whether the observed relationship between the HSAP program component and student performance was statistically significant. However, sample size influences statistical significance, such that with a large sample, even small differences may be significant. Therefore, effect sizes were used to judge whether the observed relationships were large enough to be of practical significance to educators (American Psychological Association, 2001). Standardized regression coefficients (β values) were used as an effect size measure (Kline, 2005). To interpret the magnitude of β values, the following guidelines from Cohen (1988) were used: .10, .30, and .50 which correspond to small, medium, and large effect sizes, respectively.

Strengths and Limitations Associated with the Study

A strength of this study is that all schools involved in the HSAP program participated in the evaluation. Further, to measure the extent of implementation of each component among targeted students, performance data from individual students were used, including scores from ACCUPLACER placement and Diagnostic tests, survey responses about knowledge of the ACCUPLACER tests, and time spent on the ACCUPLACER//MyFoundationsLab intervention. However, self-reports from interviews with school staff members were used to evaluate certain aspects of implementation; it is possible that these responses were self-serving. Further, as noted below, the response rates to the two student surveys meant that the survey responses may not reflect all targeted students.

Results

Findings for Question One: To what extent and with what quality is the HSAP program being implemented as intended? How consistent is implementation across schools?

Students Targeted for the HSAP Program

Criteria to identify students. The HSAP program is targeted to students who have identified Montgomery College as their first or second choice for postsecondary studies and who do not have SAT or ACT scores at the levels that are considered college ready. Among the 13 schools, 3 used both these criteria, 9 only used one criterion, and 1 did not use either criteria to identify students for the HSAP program, but instead invited all seniors. Among the nine schools only using one criterion, seven identified or invited students based solely on student interest in attending Montgomery College and one school invited students with low or no ACT or SAT scores. The final school invited students who were interested in Montgomery College and also identified seniors who had not applied to any college or had low grade point averages.

Student characteristics. The targeted students included about equal numbers of females and males and Black or African American and White students (Table 1). One tenth of targeted students were Asian; more than one third were Hispanic/Latino. However, 5% currently received ESOL services, even though these students are not part of the targeted group for the HSAP program, as described above. Lastly, more than one third of all targeted students received FARMS services, and almost one sixth received special education services.

Table 1
Demographic Characteristics and Service
Receipt of Targeted Students

Characteristics and services	(N = 1,293)	
	n	%
Gender		
Female	646	50.0
Male	647	50.0
Race/ethnicity		
American Indian	#	#
Asian	137	10.6
Black or African American	343	26.5
Pacific Islander	#	#
White	297	23.0
Hispanic/Latino	470	36.3
Two or more races	39	3.0
ESOL		
Current	70	5.4
Prior (not current)	341	26.4
FARMS		
Current	490	37.9
Prior (not current)	317	24.5
Special education		
Current	208	16.1
Prior (not current)	116	9.0

Note. # = less than 1% or fewer than five students.

Test history. More than 80% of targeted students completed the Preliminary SAT (PSAT) in Grade 10 (Table 2). Based on the relationship between PSAT scores and a combined SAT score of 1550 or higher, the College Board has identified 145 on the Grade 10 PSAT as the college readiness benchmark score (Proctor, Wyatt, & Wiley, 2010). Based on this score, fewer than 8% of targeted students who took the PSAT earned a college-ready score.

Table 2
Test History of Targeted Students

Test	Completed test (N = 1,293)		Average scores ^a		Scores at college-ready level ^a	
	n	%	Mean	Median	n	%
Grade 10 PSAT	1,071	82.8	111.4	110.0	83	7.7
ACT ^b	326	25.2	18.1	18.0	31	9.5
SAT ^b	619	47.9	1,352.7	1,340.0	68	11.0
ACT or SAT or both ^b	772	59.7	NA	NA	81	10.5

^aLimited to students who completed the test.

^bAs of May 2011.

By the end of Grade 11, one quarter of targeted students had taken the ACT and almost twice as many (48%) had completed the SAT (Table 2). Based on the benchmark scores from MCPS's Key 7 (see Figure 1 above), about 10% of these test-takers earned a college-ready score on the ACT (9.5%), the SAT (11.0%), or at least one of these two tests (10.5%). Among all targeted students, only 7% (81/1,293) had college-ready ACT or SAT scores. Thus, although only 4 of the 13 schools reported using SAT or ACT scores to identify students, 93% of targeted students met the criterion of lacking test scores that indicated college readiness.

Component 1: Information About the ACCUPLACER Placement Test

The first component of the HSAP is the provision of information about ACCUPLACER, including its purpose, usage, and format, to targeted students and their parents.

Delivery of information. Five schools provided information about the ACCUPLACER placement test to all targeted students, typically through a letter. Five schools delivered some information to all targeted students or to all seniors, but provided more information only to students that actually took the ACCUPLACER placement test. These schools typically did so verbally, either in presentations to entire classes, at an informational meeting, or in a one-on-one meeting. The remaining three schools informed only students who came to take the test, with a verbal presentation.

All 13 schools told students about the three subject areas and the key purpose of the ACCUPLACER test: that colleges use ACCUPLACER data to determine whether students need developmental courses or are ready for credit-bearing, college-level courses. Almost all schools (11 of 13) gave out some information about the format of the test, most frequently that the test is untimed. Most schools (9 of 13) told students that colleges other than Montgomery College use the ACCUPLACER and that students may not use hand-held calculators on the test. Fewer schools informed students that the answer to one question determines the next one (7), that they cannot skip any questions (6), and that they cannot go back to an earlier question (5). Thus, implementation of component 1 was fairly consistent across schools. Further, the majority of

schools (8 of 13) gave targeted students information about the ACCUPLACER Diagnostic test and the availability of academic interventions.

Student knowledge. A total of 384 targeted students answered a survey about the ACCUPLACER placement test prior to their first time taking the test. For each item on the survey, students indicated whether it was true or false or answered don't know. Student responses, categorized as correct or incorrect, are in Table 3. Because the response rate among targeted students was only 30%, these results may not be representative of all targeted students.¹

Almost nine out of ten student respondents knew that Montgomery College uses the ACCUPLACER test to determine whether students may enroll in college-level, credit-bearing courses. Montgomery College does not use scores from the ACCUPLACER test for other purposes; however, far fewer students knew that Montgomery College does not use ACCUPLACER scores to give college credit for courses taken in high school (37%) or to make decisions about admitting students (31%). Also, only about one third of respondents knew that colleges and universities other than Montgomery College use the ACCUPLACER test (38%).

Table 3
Student Knowledge about the ACCUPLACER Placement Test

Items on purpose and usage	Student responses (<i>N</i> = 384)					
	Correct		Incorrect		Don't know	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Montgomery College uses scores from the ACCUPLACER test to determine whether students can enroll in college level-credit bearing courses instead of non-credit remedial courses.	340	88.5	5	1.3	39	10.2
In addition to Montgomery College, other colleges and universities have students take the ACCUPLACER test.	147	38.3	86	22.4	151	39.3
Montgomery College uses scores from the ACCUPLACER test to give college-credit for courses taken in high school.	143	37.2	107	27.9	134	34.9
Montgomery College uses scores from the ACCUPLACER test to make decisions about admitting students.	118	30.7	193	50.3	73	19.0
Items on format and rules						
I can take as much time as I need to finish the ACCUPLACER test.	301	78.4	28	7.3	55	14.3
I can use my own calculator on the math sections of the ACCUPLACER test.	250	65.1	46	12.0	88	22.9
On the ACCUPLACER test, my answer to each question determines how difficult the next question will be.	227	59.1	32	8.3	125	32.6
I can skip answering a question on the ACCUPLACER test.	192	50.0	26	6.8	166	43.2
I can go back and review all my answers on the ACCUPLACER before submitting it.	157	40.9	71	18.5	156	40.6

Note. Totals may not equal 100% due to rounding.

With respect to format and rules, more than three quarters (78%) of student respondents knew that the test is untimed. About six out of ten respondents understood the calculator rule for the ACCUPLACER test (66%) and that the answer to each question determines how difficult the next question will be (59%). Fewer student respondents understood whether skipping questions (50%) or reviewing answers at the end of the test (41%) is allowed.

¹ An additional 190 students who were not among those targeted completed this survey. Their responses were very similar to those from targeted students.

Component 2: ACCUPLACER Placement Test in Fall/Winter

The second component of the HSAP program is to take the ACCUPLACER placement test. Among all targeted students, only 41% (524) completed this component. Implementation across schools was not consistent; the percentage of targeted students that completed the fall/winter ACCUPLACER test varied by school from none to nearly all (Table 4).

Table 4
Number and Percentage of Eligible Students Who
Completed the Fall/Winter ACCUPLACER Placement Test, by School

School	Completed ACCUPLACER placement test	
	<i>n</i>	%
Albert Einstein	74	50.3
Bethesda-Chevy Chase	45	67.2
Damascus	129	99.2
James Hubert Blake	0	0.0
Northwest	61	78.2
Northwood	12	30.0
Paint Branch	9	12.5
Quince Orchard	19	28.8
Richard Montgomery	41	25.9
Rockville	25	35.2
Seneca Valley	27	22.3
Watkins Mill	36	31.6
Wheaton	46	44.7
TOTAL	524	40.5

Among the targeted students who completed the fall/winter ACCUPLACER test, over 80% (434, 83%) completed the placement test during the fall semester, as planned; the remaining 90 students (17%) took the test during the spring semester.

Based on the requirements of Montgomery College, 17 of the 524 test-takers demonstrated college readiness in all subject areas. These students were not expected to continue in the HSAP program; thus the number of targeted students eligible for component 3 decreased to 1,276.

Component 3: ACCUPLACER Diagnostic Test

The third component of the HSAP program is to complete the ACCUPLACER Diagnostic test. Out of the 1,276 eligible students, only about one half, (610, 48%) took this test. Implementation was inconsistent across schools; the rate of completion varied by school from 6% to more than 80% (Table 5). Six schools reported that scheduling problems, including access to computer labs or proctors, prevented some students from completing the ACCUPLACER Diagnostic test. Staff at three schools did not invite all targeted students to take the Diagnostic test for various reasons: limited seating in the computer lab, scores deemed too low (“Some students were too far below the needed level to be brought up to speed.”), or a requirement that

students prepare using websites recommended by the school. Staff at three schools commented that the length of time to complete the Diagnostic test, sometimes all day, was a problem.

Table 5
Number and Percentage of Eligible Students Who Completed the
ACCUPLACER Diagnostic Test, by School

School	Completed ACCUPLACER Diagnostic test	
	<i>n</i>	%
Albert Einstein	92	62.6
Bethesda-Chevy Chase	32	48.5
Damascus	72	58.5
James Hubert Blake	76	60.3
Northwest	54	71.1
Northwood	13	33.3
Paint Branch	11	15.3
Quince Orchard	53	81.5
Richard Montgomery	97	62.2
Rockville	36	51.4
Seneca Valley	7	5.8
Watkins Mill	16	14.0
Wheaton	51	50.0
TOTAL	610	47.8

Component 4: Participation in MyFoundationsLab Interventions

The fourth key component of the HSAP program is student participation in appropriate academic interventions. An appropriate intervention was defined as one in a student's area of weakness, as identified by the ACCUPLACER Diagnostic test. The HSAP program used ACCUPLACER/MyFoundationsLab, an online resource, as the intervention. Based on performance on the ACCUPLACER Diagnostic test, each student received a personalized set of learning modules for MyFoundationsLab and registration codes to access their learning modules. Because only students that completed the ACCUPLACER Diagnostic test were able to use the intervention, all the students (666, 52%) who did not take the Diagnostic test also did not participate in the MyFoundationsLab intervention (Table 6). Among students who did complete the Diagnostic test, a small number performed well enough in a subject area that no intervention was required, including 43 (3%) students for mathematics, 28 (2%) for reading, and 49 (4%) for writing.

Table 6
Extent of Participation in MyFoundationsLab Among Eligible Students,
by Subject Area ($N = 1,276$)

Subject area	Did not complete Diagnostic		No intervention required		No registration		No participation		Minimal participation (< 20 minutes)		More than minimal participation (≥ 20 minutes)	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Mathematics	666	52.2	43	3.4	305	23.9	140	11.0	30	2.4	92	7.2
Reading	666	52.2	28	2.2	305	23.9	140	11.0	50	3.9	87	6.8
Writing	666	52.2	49	3.8	305	23.9	185	14.5	32	2.5	39	3.1

Although nearly all students who completed the ACCUPLACER Diagnostic test did need intervention, very few participated in MyFoundationsLab. Almost one quarter of students did not complete the first step: registering for MyFoundationsLab. Staff members at four schools reported that problems with the registration process kept some students from using MyFoundationsLab. Problems mentioned were a long, complicated process involving several codes; confusion about whether part of the code was the letter “O” or the number “0”; and use of the dummy codes (provided as examples) instead of the student’s own personal code. Other students registered but did not participate, including 11% of all students for mathematics and reading interventions and nearly 15% for the writing intervention.

Each student had up to 10 weeks to work on MyFoundationsLab after registration. However, only about one out of ten targeted students participated in an intervention in each subject area during that time (Table 6). Note that students were expected to work independently on MyFoundationsLab; only three schools offered a course during the school day. Among students who participated in MyFoundationsLab, time spent on the intervention ranged from 3 seconds to 18.5 hours for mathematics, 4 seconds to 34.8 hours for reading, and 5 seconds to 28.1 hours for writing. Minimal participation was defined as spending less than 20 minutes on MyFoundationsLab, and more than minimal participation was defined as spending 20 minutes or more. Fewer than 5% of eligible students had minimal participation in each subject area. About 7% of students had more than minimal participation in the mathematics and reading interventions, but only 3% spent 20 minutes or more on the writing intervention. About one tenth of targeted students (137, 11%) had more than minimal participation in MyFoundationsLab for at least one subject.

Implementation of component 4 on participation in MyFoundationsLab was not consistent across schools for mathematics and reading. The percentage of eligible students with more than minimal participation ranged from 0% to more than 30% for the intervention on mathematics (Table 6.1) and from 1% to 23% for the intervention on reading (Table 6.2).

Table 6.1
Extent of Participation in MyFoundationsLab for Mathematics
Among Eligible Students, by School ($N = 1,276$)

School	Did not complete Diagnostic		No intervention required		No registration		No participation		Minimal participation (< 20 minutes)		More than minimal participation (≥ 20 minutes)	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Albert Einstein	55	37.4	3	2.0	43	29.3	38	25.9	7	4.8	1	0.7
Bethesda-Chevy Chase	34	51.5	2	3.0	17	25.8	9	13.6	2	3.0	2	3.0
Damascus	51	41.5	36	29.3	13	10.6	8	6.5	3	2.4	12	9.8
James Hubert Blake	50	39.7	1	0.8	57	45.2	10	7.9	2	1.6	6	4.8
Northwest	22	28.9	1	1.3	4	5.3	22	28.9	3	3.9	24	31.6
Northwood	26	66.7	0	0.0	4	10.3	3	7.7	0	0.0	6	15.4
Paint Branch	61	84.7	0	0.0	6	8.3	3	4.2	0	0.0	2	2.8
Quince Orchard	12	18.5	0	0.0	47	72.3	5	7.7	1	1.5	0	0.0
Richard Montgomery	59	37.8	0	0.0	68	43.6	8	5.1	1	0.6	20	12.8
Rockville	34	48.6	0	0.0	22	31.4	12	17.1	2	2.9	0	0.0
Seneca Valley	113	94.2	0	0.0	5	4.2	0	0.0	1	0.8	1	0.8
Watkins Mill	98	86.0	0	0.0	1	0.9	8	7.0	5	4.4	2	1.8
Wheaton	51	50.0	0	0.0	18	17.6	14	13.7	3	2.9	16	15.7
TOTAL	666	52.2	43	3.4	305	23.9	140	11.0	30	2.4	92	7.2

Table 6.2
Extent of Participation in MyFoundationsLab for Reading
Among Eligible Students, by School ($N = 1,276$)

School	Did not complete Diagnostic		No intervention required		No registration		No participation		Minimal participation (< 20 minutes)		More than minimal participation (≥ 20 minutes)	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Albert Einstein	55	37.4	3	2.0	43	29.3	30	20.4	13	8.8	3	2.0
Bethesda-Chevy Chase	34	51.5	2	3.0	17	25.8	10	15.2	1	1.5	2	3.0
Damascus	51	41.5	8	6.5	13	10.6	12	9.8	11	8.9	28	22.8
James Hubert Blake	50	39.7	3	2.4	57	45.2	6	4.8	4	3.2	6	4.8
Northwest	22	28.9	4	5.3	4	5.3	26	34.2	6	7.9	14	18.4
Northwood	26	66.7	0	0.0	4	10.3	5	12.8	2	5.1	2	5.1
Paint Branch	61	84.7	1	1.4	6	8.3	2	2.8	0	0.0	2	2.8
Quince Orchard	12	18.5	0	0.0	47	72.3	3	4.6	0	0.0	3	4.6
Richard Montgomery	59	37.8	3	1.9	68	43.6	14	9.0	4	2.6	8	5.1
Rockville	34	48.6	1	1.4	22	31.4	8	11.4	4	5.7	1	1.4
Seneca Valley	113	94.2	1	0.8	5	4.2	0	0.0	0	0.0	1	0.8
Watkins Mill	98	86.0	0	0.0	1	0.9	12	10.5	1	0.9	2	1.8
Wheaton	51	50.0	2	2.0	18	17.6	12	11.8	4	3.9	15	14.7
TOTAL	666	52.2	28	2.2	305	23.9	140	11.0	50	3.9	87	6.8

Implementation was more consistent for the intervention on writing. Across schools, the percentage of eligible students with more than minimal participation in this intervention ranged from 1% to 13% (Table 6.3).

Table 6.3
Extent of Participation in MyFoundationsLab for Writing
Among Eligible Students, by School ($N = 1,276$)

School	Did not complete Diagnostic		No intervention required		No registration		No participation		Minimal participation (< 20 minutes)		More than minimal participation (≥ 20 minutes)	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Albert Einstein	55	37.4	4	2.7	43	29.3	40	27.2	4	2.7	1	0.7
Bethesda-Chevy Chase	34	51.5	4	6.1	17	25.8	9	13.6	1	1.5	1	1.5
Damascus	51	41.5	19	15.4	13	10.6	23	18.7	9	7.3	8	6.5
James Hubert Blake	50	39.7	6	4.8	57	45.2	8	6.3	2	1.6	3	2.4
Northwest	22	28.9	6	7.9	4	5.3	28	36.8	6	7.9	10	13.2
Northwood	26	66.7	0	0.0	4	10.3	7	17.9	0	0.0	2	5.1
Paint Branch	61	84.7	1	1.4	6	8.3	3	4.2	0	0.0	1	1.4
Quince Orchard	12	18.5	0	0.0	47	72.3	5	7.7	0	0.0	1	1.5
Richard Montgomery	59	37.8	5	3.2	68	43.6	19	12.2	2	1.3	3	1.9
Rockville	34	48.6	1	1.4	22	31.4	10	14.3	2	2.9	1	1.4
Seneca Valley	113	94.2	1	0.8	5	4.2	1	0.8	0	0.0	0	0.0
Watkins Mill	98	86.0	0	0.0	1	0.9	14	12.3	0	0.0	1	0.9
Wheaton	51	50.0	2	2.0	18	17.6	18	17.6	6	5.9	7	6.9
TOTAL	666	52.2	49	3.8	305	23.9	185	14.5	32	2.5	39	3.1

Participation in MyFoundationsLab Interventions by Student Subgroup

This section reports on whether participation in interventions differed across student subgroups, among the 610 students who completed the Diagnostic test. The analysis used χ^2 tests; to meet the requirements of this test, categories with low frequencies were excluded for some analyses.

Gender. For each subject area, female students were more likely than male students to engage in more than minimal participation (Table 7).

Table 7
Extent of Participation in MyFoundationsLab Intervention Among Eligible Students,
by Subject Area and Gender

Subject area and gender		No registration		No participation		Minimal participation (<20 minutes)		More than minimal participation (≥ 20 minutes)	
		<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Mathematics ($n = 567$)	Female	147	48.7	80	26.5	15	5.0	60	19.9
	Male	158	59.6	60	22.6	15	5.7	32	12.1
Reading ($n = 582$)	Female	147	47.9	73	23.8	30	9.8	57	18.6
	Male	158	57.5	67	24.4	20	7.3	30	10.9
Writing ($n = 561$)	Female	147	49.7	107	36.1	15	5.1	27	9.1
	Male	158	59.6	78	29.4	17	6.4	12	4.5

These differences between female and male students in participation with interventions were significant for each subject area: mathematics (χ^2 (df = 3) = 9.4, $p < .05$), reading (χ^2 (df = 3) = 9.3, $p < .05$), and writing (χ^2 (df = 3) = 9.2, $p < .05$).

Race/ethnicity. Because of the requirements of the χ^2 test, American Indian, Pacific Islander, and students of Two or More Races were excluded from the analysis. Likewise, the categories of minimal participation and more than minimal participation were combined for mathematics and writing interventions. Students did not differ significantly across racial/ethnic subgroups in the extent of participation with interventions for mathematics (χ^2 (df = 6) = 8.9, $p > .05$) (Table 8.1). However, there were significant differences in the extent of participation with interventions for writing (χ^2 (df = 6) = 17.1, $p < .01$); Asian and White students were more likely to participate than Black or African American or Hispanic/Latino students (Table 8.1).

Table 8.1
Extent of Participation in MyFoundationsLab Intervention for Mathematics and Writing Among Eligible Students, by Race/Ethnicity

Subject area and race/ethnicity	No registration		No participation		Minimal or More than minimal participation		
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	
Mathematics (<i>N</i> = 548)	Asian	35	55.6	13	20.6	15	23.8
	Black or African American	89	57.1	39	25.0	28	17.9
	White	58	56.3	17	16.5	28	27.2
	Hispanic/Latino	112	49.6	66	29.2	48	21.2
Writing (<i>N</i> = 542)	Asian	35	60.3	13	22.4	10	17.2
	Black or African American	89	58.2	49	32.0	15	9.8
	White	58	55.8	25	24.0	21	20.2
	Hispanic/Latino	112	49.3	91	40.1	24	10.6

Lastly, students did not differ significantly across racial/ethnic subgroups in the extent of participation with interventions for reading (χ^2 (df = 9) = 16.4, $p > .05$) (Table 8.2).

Table 8.2
Extent of Participation in MyFoundationsLab Intervention for Reading Among Eligible Students, by Race/Ethnicity

Subject area and race/ethnicity	No registration		No participation		Minimal participation (< 20 minutes)		More than minimal participation (≥20 minutes)		
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	
Reading (<i>N</i> = 561)	Asian	35	56.5	11	17.7	6	9.7	10	16.1
	Black or African American	89	57.4	37	23.9	8	5.2	21	13.5
	White	58	51.3	22	19.5	7	6.2	26	23.0
	Hispanic/Latino	112	48.5	62	26.8	28	12.1	29	12.6

ESOL. Because of the requirements of the χ^2 test, the group of students currently receiving ESOL services was excluded from the analysis. (This exclusion was appropriate because students currently receiving ESOL services should take the ACCUPLACER ESL, not the ACCUPLACER test.) Among the remaining subgroups, there were no significant differences in participation in interventions for mathematics (χ^2 (df = 3) = 3.3, $p > .05$), reading (χ^2 (df = 3) = 5.3, $p > .05$), or writing (χ^2 (df = 3) = 3.0, $p > .05$) (Table 9).

Table 9
Extent of Participation in MyFoundationsLab Intervention Among Eligible Students,
by Subject Area and Receipt of ESOL Services

Subject area and receipt of ESOL services		No registration		No participation		Minimal participation (<20 minutes)		More than minimal participation (\geq 20 minutes)	
		<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Mathematics (N = 543)	Never	202	53.9	87	23.2	19	5.1	67	17.9
	Prior, not current	90	53.6	47	28.0	10	6.0	21	12.5
Reading (N = 552)	Never	202	52.1	92	23.7	30	7.7	64	16.5
	Prior, not current	90	52.9	44	25.9	19	11.2	17	10.0
Writing (N = 538)	Never	202	54.3	118	31.7	23	6.2	29	7.8
	Prior, not current	90	54.2	60	36.1	9	5.4	7	4.2

FARMS. Among the subgroups of students that differed in receipt of FARMS, there were no significant differences in participation for interventions in mathematics (χ^2 (df = 6) = 11.4, $p > .05$), reading (χ^2 (df = 6) = 7.9, $p > .05$), or writing (χ^2 (df = 6) = 8.3, $p > .05$) (Table 10).

Table 10
Extent of Participation in MyFoundationsLab Intervention Among Eligible Students,
by Subject Area and Receipt of FARMS Services

Subject area and receipt of FARMS services		No registration		No participation		Minimal participation (<20 minutes)		More than minimal participation (\geq 20 minutes)	
		<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Mathematics (N = 567)	Never	115	57.2	36	17.9	12	6.0	38	18.9
	Prior, not current	77	51.7	41	27.5	11	7.4	20	13.4
	Current	113	52.1	63	29.0	7	3.2	34	15.7
Reading (N = 582)	Never	115	54.2	46	21.7	14	6.6	37	17.5
	Prior, not current	77	50.7	45	29.6	11	7.2	19	12.5
	Current	113	51.8	49	22.5	25	11.5	31	14.2
Writing (N = 561)	Never	115	58.4	53	26.9	10	5.1	19	9.6
	Prior, not current	77	51.7	53	35.6	9	6.0	10	6.7
	Current	113	52.6	79	36.7	13	6.0	10	4.7

Special education. Across students that differed in receipt of special education services, there were no significant differences in participation in interventions for mathematics (χ^2 (df = 4) = 3.5, $p > .05$), reading (χ^2 (df = 4) = 5.7, $p > .05$), or writing (χ^2 (df = 4) = 6.2, $p > .05$)

(Table 11). Due to the requirements of the χ^2 test, the categories of minimal participation and more than minimal participation were combined for this analysis.

Table 11
Extent of Participation in MyFoundationsLab Intervention Among Eligible Students,
by Subject Area and Receipt of Special Education Services

Subject area and receipt of special education services		No registration		No participation		Minimal or More than minimal participation	
		<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Mathematics (<i>N</i> = 567)	Never	226	54.6	101	24.4	87	21.0
	Prior, not current	23	43.4	14	26.4	16	30.2
	Current	56	56.0	25	25.0	19	19.0
Reading (<i>N</i> = 582)	Never	226	54.2	100	24.0	91	21.8
	Prior, not current	23	41.1	18	32.1	15	26.8
	Current	56	51.4	22	20.2	31	28.4
Writing (<i>N</i> = 561)	Never	226	56.5	121	30.3	53	13.3
	Prior, not current	23	43.4	22	41.5	8	15.1
	Current	56	51.9	42	38.9	10	9.3

Summary. There were few statistically significant differences across student subgroups in the extent of participation in MyFoundationsLab interventions. Female students were more likely than male students to engage in more than minimal participation, for each subject area. Asian and White students were more likely to participate in writing interventions than Black or African American or Hispanic/Latino students. Students did not differ across racial/ethnic subgroups in the extent of participation with interventions for mathematics or reading. There were no statistically significant differences in the extent of participation in interventions for any subject area among students who differed in the receipt of ESOL, FARMS, or special education services.

Supports for Participation in MyFoundationsLab Interventions

Students. In an online survey, students identified what they liked best about MyFoundationsLab from a list (Table 12). The most popular aspects among respondents were easy to use (61%), ability to work at “your own pace” (50%), and ability to use from any computer (41%). At least one quarter of student respondents selected availability 24-7 (29%), step-by-step help (27%), and own Learning Path (27%). One fifth or fewer respondents chose the remaining aspects. About 8% of students did not choose anything that they liked best.

Table 12
Student Responses to What They Liked Best
About ACCUPLACER/MyFoundationsLab

What did you like best about ACCUPLACER/MyFoundationsLab?	Selected (<i>N</i> = 683)	
	<i>n</i>	%
Easy to use	413	60.5
Ability to work at your own pace	338	49.5
Available to use from any computer	277	40.6
Available to use 24-7	200	29.3
Step-by-step help	185	27.1
Your own "Learning Path"	181	26.5
Instant feedback	134	19.6
A variety of practice exercises	130	19.0
"Study Skills" resources	126	18.4
Videos to explain concepts	87	12.7
Overviews to explain concepts	82	12.0
Animations to explain concepts	66	9.7
No response	52	7.6

Note. Respondents were instructed to choose up to three; 138 respondents chose more than three.

Students also identified what helped them work on MyFoundationsLab, from a list (Table 13). Being able to work on the intervention before or after school (35%), during the school day (29%), or during a class (19%) were three of the most frequent responses. At least one sixth of respondents selected supports provided by school staff members: reminder emails (21%), help on using MyFoundationsLab (18%), and review sessions (17%). Among the 30 students that indicated other, six said that they could work on MyFoundationsLab at home, five said that there were teachers there to help, four said they could see what they got wrong, and three said they could take practice tests. About one third of respondents (34%) did not identify anything helpful, including 27% who selected “none of the above” and 8% who did not respond to the question.

Table 13
Student Responses to What Helped to Complete
Work in ACCUPLACER/MyFoundationsLab

Which of the following helped YOU to complete your work in ACCUPLACER/MyFoundationsLab?	Selected (<i>N</i> = 683)	
	<i>n</i>	%
I could work on MyFoundationsLab before or after school.	240	35.1
I could work on MyFoundationsLab during the school day.	199	29.1
I got emails reminding me about MyFoundationsLab.	146	21.4
I could work on MyFoundationsLab during a class.	127	18.6
I got help on how to use MyFoundationsLab.	121	17.7
I went to review sessions with a teacher.	117	17.1
Other	30	4.4
None of the above	183	26.8
No response	52	7.6

Note. Respondents were instructed to check all that were helpful.

School staff. School staff members reported on supports available at their school for students to use MyFoundationsLab. All schools reported opportunities for students to use a computer for MyFoundationsLab during school. Nearly all schools (12 of 13) provided

opportunities for students to work on MyFoundationsLab before or after school, either with scheduled sessions to work on *MyFoundationsLab* (7), an opportunity to use a computer for MyFoundationsLab (4), or both (1). Only three schools arranged for a scheduled class during the school day to work on MyFoundationsLab.

Although the majority of schools (8 of 13) offered a session on how to use MyFoundationsLab, only two schools offered review sessions to go over specific topics in English, reading, or mathematics. Staff members reported other ways of supporting students to use MyFoundationsLab as follows: personal follow-up (3), food (2), access to MyFoundationsLab for students with special schedules (1), help with transportation home (1), and information about the phone application for MyFoundationsLab (1).

At 12 schools, the monitoring teacher(s) reported prompting or reminding students to use MyFoundationsLab. They used one or two of the following methods: e-mails (5), verbal reminders (5), sending notes to students in class (4), reminders through the Naviance system (an Internet-based program designed to help navigate the college application process) (2). The monitoring teacher at the remaining school did not send reminders.

At 11 schools, the monitoring teacher(s) reported monitoring student use of MyFoundationsLab, usually by checking student log-ins or sign-ups to use MyFoundationsLab. Less frequently used approaches were asking students, observing students, or checking progress online as recorded in MyFoundationsLab (e.g., mastery level), at the computer. The monitoring teacher at the remaining two schools did not monitor student use of MyFoundationsLab.

Each monitoring teacher also provided an opinion about the most critical supports for student success. Five teachers mentioned reminding or monitoring students and building a personal relationship with students so that the reminders are more effective. Staff members at two schools identified each of the following: availability of the computer lab, a visual representation for students of their scores and progress, teacher to oversee program and help students. Other critical supports mentioned by a single staff person were: convenience, food rewards, link between the Diagnostic test and MyFoundationsLab, parent involvement.

Barriers to Participation in MyFoundationsLab Interventions

Students. In an online survey, students were asked to identify what made it harder to complete work in MyFoundationsLab. More than one half of respondents did not identify anything, including 46% who checked “none of the above” and 11% who did not respond (Table 14). The most frequently mentioned barriers were as follows: preference for learning in a classroom (20%), lack of time to work on MyFoundationsLab during the school day (16%), and too much material to cover (14%). Among students who indicated other (n = 32), eight said the material was too difficult or boring, seven had computer problems, six said they were too busy, three were not aware of MyFoundationsLab, and three got distracted when working on MyFoundationsLab.

Table 14
Student Responses About Barriers to
Completing ACCUPLACER//MyFoundationsLab (N = 683)

Which of the following made it harder for YOU to complete your work in ACCUPLACER//MyFoundationsLab?	Selected	
	n	%
I would rather learn in a classroom than online.	133	19.5
There wasn't time for me to work on MyFoundationsLab during the school day.	112	16.4
There was too much material to cover in MyFoundationsLab.	94	13.8
There wasn't a teacher to help me.	64	9.4
Lessons in MyFoundationsLab were confusing.	63	9.2
I couldn't get to a computer to use MyFoundationsLab.	41	6.0
MyFoundationsLab was too hard to use.	20	2.9
Other	32	4.7
None of the above	311	45.5
No response	77	11.3

Note. Respondents were instructed to check all that made it harder.

School staff. Monitoring teachers reported on whether any of several possible barriers to work on or complete MyFoundationsLab had been a problem, based on what they heard from students; monitoring teachers also gave their opinions about the most critical barriers to student success in using MyFoundationsLab. A key barrier reported was too much material to cover in MyFoundationsLab. Staff at 8 of the 13 schools identified this barrier as an obstacle for their students. Further, three staff members believed that this factor was one of the critical barriers, because many students were overwhelmed. As one interviewee said, “Their [students’] own lack of knowledge in reading, writing, and mathematics is the most critical barrier.”

A second key barrier was time to work on MyFoundationsLab during the school day. Staff at 6 of the 13 schools agreed that this barrier was an obstacle for their students. Further, five staff members identified finding the time to fit MyFoundationsLab into the day as a critical barrier, especially for second semester seniors. Two staff members mentioned that many of the targeted students still had to complete requirements for graduation (e.g., student service learning hours, High School Assessments [HSA]) and so were even more pressed for time.

A third barrier related to the two already mentioned. Staff members at 6 of the 13 schools believed the process started too late in the year. They noted that some students started off the year thinking they were going to attend a school other than Montgomery College; when they did not gain admission to that college or found they could not afford the tuition, they were scrambling. Staff members suggested starting the process during junior year to allow students more time to work on the areas identified.

School staff members mentioned other critical barriers. Five staff members talked about how students need to be self-motivated and work independently for this program to work; as one staff member said, “MyFoundationsLab is great for self-motivated students or students who only have a few areas they need to review or work on to show mastery of a course.” There were suggestions to provide a more structured environment or make the program a class. Similarly, three staff members noted that students did not understand the value of the program.

One or two teachers agreed that each of the following was a barrier for students at their schools: access to a computer to use MyFoundationsLab, MyFoundationsLab was too hard to use, and preference for learning in a classroom rather than online.

Component 5: ACCUPLACER Placement Test in Spring

The final component of the HSAP program is to take the ACCUPLACER placement test at the end of the school year. Out of the 1,276 targeted students, less than one half (623, 49%) took the ACCUPLACER placement test in spring 2012. Implementation was not consistent; the completion rate for the spring test varied across schools from 22% to 72% (Table 15).

Table 15
Number and Percentage of Eligible Students who Completed the
Spring ACCUPLACER Placement Test, by School

School	Completed spring ACCUPLACER placement test	
	<i>n</i>	%
Albert Einstein	53	36.1
Bethesda-Chevy Chase	22	33.3
Damascus	75	58.5
James Hubert Blake	90	71.4
Northwest	42	55.3
Northwood	25	64.1
Paint Branch	47	65.3
Quince Orchard	37	56.9
Richard Montgomery	57	36.5
Rockville	45	64.3
Seneca Valley	26	21.7
Watkins Mill	76	66.7
Wheaton	31	30.4
TOTAL	623	48.8

After completing the spring ACCUPLACER placement test, students could complete a survey about their knowledge of the ACCUPLACER placement test and its usage. This survey had the same questions as the fall survey. To examine whether students continued to learn about the ACCUPLACER placement test during the course of the HSAP program, the responses of the 165 targeted students who completed both fall and spring surveys were analyzed (Table 16). More students correctly answered each survey question on the spring administration than on the fall administration. On four survey questions, the percentage correct in the spring was more than 20 percentage points higher than in the fall, as follows:

- Montgomery College uses scores from the ACCUPLACER test to give college credit for courses taken in high school (21 percentage points higher).
- Montgomery College uses scores from the ACCUPLACER test to make decisions about admitting students (24 percentage points higher).
- I can use my own calculator on the math sections of the ACCUPLACER test (24 percentage points higher).

- I can skip answering a question on the ACCUPLACER test (30 percentage points higher).

Table 16
Student Knowledge about the ACCUPLACER Placement Test
at Fall and Spring Survey Administrations

Items on purpose and usage	Percent students responding correctly (N = 165)			
	Fall survey		Spring survey	
	<i>n</i>	%	<i>n</i>	%
Montgomery College uses scores from the ACCUPLACER test to determine whether students can enroll in college level-credit bearing courses instead of non-credit remedial courses.	144	87.3	156	94.6
In addition to Montgomery College, other colleges and universities have students take the ACCUPLACER test.	64	38.8	66	40.0
Montgomery College uses scores from the ACCUPLACER test to give college-credit for courses taken in high school.	62	37.6	97	58.8
Montgomery College uses scores from the ACCUPLACER test to make decisions about admitting students.	49	29.7	88	53.3
Items on format and rules				
I can take as much time as I need to finish the ACCUPLACER test.	138	83.6	147	89.1
I can use my own calculator on the math sections of the ACCUPLACER test.	112	67.9	152	92.1
On the ACCUPLACER test, my answer to each question determines how difficult the next question will be.	111	67.3	114	69.1
I can skip answering a question on the ACCUPLACER test.	90	54.6	139	84.2

Students had more experience with the test at the second survey administration. This experience could help them gain information about the format and rules for the test (i.e., calculator use and skipping questions). Information about the test's purpose and usage, however, would not be gained from simply taking the test. Thus, the findings suggest that these respondents continued to learn about how the ACCUPLACER test is used during the course of the HSAP program.

Summary of Implementation

To summarize the extent of implementation of the HSAP program, we used the following categories with respect to the rate of completion by targeted students:

- Low: one third or less of students
- Moderate: between one third and two thirds of students
- High: two thirds or more of students

To identify students for the HSAP program, nearly all schools used the criterion of student interest in Montgomery College. Although the majority of schools did not explicitly consider student performance on the ACT or SAT, almost all targeted students also met this criterion. Thus, the level of implementation for targeting students was considered high.

Component 1 concerned informing students about the ACCUPLACER test. Staff members at all schools reported telling students about the test's key purpose: to determine enrollment in college-level, credit-bearing courses. At the majority of schools, staff members reported sharing some

information about the test's format and usage. Thus, implementation of component 1 was fairly consistent across schools. To measure implementation of component 1 at the student level, we examined responses to nine items that assessed students' knowledge about the ACCUPLACER test on the fall student survey. For all but one of the items, the percentage of students who gave the correct answer ranged from 37% to 88%. Hence, the level of implementation of component 1 was categorized as moderate. Because only 30% of targeted students completed the surveys, the level of implementation may differ among the remaining targeted students.

Components 2, 3, and 5 each involved test taking. About 40% of targeted students completed component 2—the fall/winter ACCUPLACER placement test. The rate of completion was nearly one half for both component 3—the ACCUPLACER Diagnostic test, and component 5—the spring ACCUPLACER placement test. Therefore, the level of implementation of components 2, 3, and 5 was considered moderate. However, implementation of these components was not consistent across schools; the rate of completion varied from 22% or less to 70% or more for these components.

Component 4 concerned online academic interventions that were available for up to 10 weeks. During this time period, the percentage of targeted students who spent 20 minutes or more on the MyFoundationsLab intervention was only 7% for mathematics and reading and 3% for writing. Therefore, implementation was categorized as low. The percentage of targeted students who spent 20 minutes or more on interventions varied across schools for each subject area: mathematics (0–32%), reading (1–23%), writing (0–13%). Hence, implementation of component 4 was considered inconsistent across schools.

Although 12 of the 13 schools offered every component, only 5% of all targeted students completed components 2, 3, 4, and 5. Based on this rate of completion, we categorized overall implementation of the HSAP program as low. Overall implementation was low largely because so few students participated in component 4, the online academic interventions.

Findings for Question Two: What is the effectiveness of key components of the HSAP program with respect to college readiness, as measured by scores on the ACCUPLACER placement test?

The Effect of Student Knowledge About the ACCUPLACER Test

The effects of knowledge about the ACCUPLACER test on ACCUPLACER placement test scores were assessed using two approaches. For both, student knowledge was calculated as the sum of the number of correct answers to nine items (see items in Table 3 above) and so ranged in value from 0 to 9. This knowledge was measured just before students completed the ACCUPLACER placement test for the first time during the fall semester. Therefore, student performance on the placement test completed during the fall semester was used. Separate analyses were conducted for each subject area.

The first approach used hierarchical multiple regression and scores from the ACCUPLACER placement test. Because a larger sample size better meets the requirements of regression analysis, all students with a knowledge score and an ACCUPLACER score from the first

administration were included, even if students were not among the targeted group. The analysis controlled for each student's previous academic performance (as measured by Grade 10 PSAT scores) and demographic characteristics (including gender and race/ethnicity), and receipt of special education services. Receipt of FARMS services was excluded from the regression because it was highly correlated with the measure of race/ethnicity. (The inclusion of two highly correlated variables in a regression may distort the findings.)

Based on the results of the regression, knowledge of the ACCUPLACER test was not related to a student's mathematics or writing score, but was related to a student's reading score (Table 17). This relationship was statistically significant ($\beta = .09$, $p < .05$) and positive, indicating that students with greater knowledge of the ACCUPLACER test had higher reading scores. However, the effect size is just below the cutoff of .10 for a small effect, suggesting that the practical significance is very low in an educational setting.

Table 17
The Relationship between ACCUPLACER Placement Scores and
Knowledge of ACCUPLACER, by Subject Area

	Mathematics (<i>N</i> = 448)	Reading (<i>N</i> = 453)	Writing (<i>N</i> = 451)
Knowledge of ACCUPLACER: <i>B</i> (<i>SE</i>)	0.70 (0.51)	1.07 (0.42)	0.79 (0.44)
Knowledge of ACCUPLACER: β	0.05	0.09*	0.07
Model fit: F_5	57.24***	74.65***	60.25***
Model fit: R^2	.39	.45	.40

* $p < .05$, ** $p < .01$, *** $p \leq .001$.

The second analytical approach used the level of each student's recommended course placement for Montgomery College, based on their scores from the ACCUPLACER placement test. The course levels ranged from developmental to college-credit-bearing. There were seven levels for mathematics, five levels for reading, and four levels for writing. Spearman rho (a correlation coefficient that is appropriate for ordinal data) was used to test whether there was a positive relationship between a student's knowledge of the ACCUPLACER test and their recommended course level, with the following results:

- Mathematics: Spearman rho ($n = 562$) = .07, $p < .10$
- Reading: Spearman rho ($n = 566$) = .19, $p < .0001$
- Writing: Spearman rho ($n = 565$) = .17, $p < .0001$

The relationship was statistically significant for both reading and writing. Spearman rho also indicates effect size (Ferguson, 2009). For both subjects, the effect size is small (i.e., between .10 and .30), suggesting that the practical significance is low in an educational setting.

In summary, there was some evidence for the effectiveness of component 1 on providing information about the ACCUPLACER placement test. However, the effect sizes for the findings from both analytic approaches were small, indicating that students who knew more about the ACCUPLACER test had better performance (in reading and writing) but that the improvement was small.

The Effect of Participation in Interventions

We were unable to analyze the effect of student participation in the MyFoundationsLab online intervention, because the majority of students did not participate. Among the 623 targeted students who completed the spring ACCUPLACER test, about 500 in each subject area did not complete the ACCUPLACER Diagnostic test or did not register or participate in MyFoundationsLab; thus their participation was zero (Table 18). This number of students with no participation was so much larger than the number of students who participated, even minimally, in the intervention (fewer than 100 in each area) that it would not be appropriate for regression analysis or correlation coefficients.

Table 18
Participation in MyFoundationsLab Among Students Who Completed the
Spring ACCUPLACER Placement Test ($N = 623$), by Subject Area

Subject area	No intervention required	Did not complete Diagnostic, did not register for MFL, or did not participate in MFL	Participation in MFL (minimal or more)
	<i>n</i>	<i>n</i>	<i>n</i>
Mathematics	31	497	95
Reading	18	508	97
Writing	35	539	49

Note. MFL = MyFoundationsLab.

Discussion

In response to the number of MCPS graduates that required developmental courses, the HSAP program was started. Its goals are to decrease the need for developmental courses and improve readiness for college-level courses among MCPS graduates by improving students' scores on the ACCUPLACER placement test. The key strategies to achieve these goals are as follows:

- Increase awareness and understanding of the ACCUPLACER placement test among high school students, their parents, and high school staff members.
- Improve student preparation for the ACCUPLACER placement test through appropriate interventions.
- Administer the ACCUPLACER placement test at each student's high school, instead of at Montgomery College.

This study evaluated the first two strategies. We could not evaluate the impact of the third strategy because all schools in HSAP administered the ACCUPLACER placement test in their buildings.

The 13 schools in HSAP implemented the first strategy (i.e., component 1—providing information about ACCUPLACER) consistently and at a moderate level. Further, there was evidence for the effectiveness of this strategy; students who knew more about the ACCUPLACER test had better performance (in reading and writing) than students who knew less, although the improvement was small.

However, implementation of the second strategy (i.e., component 4—academic intervention) was incomplete, even though all schools in HSAP provided appropriate interventions through the online intervention MyFoundationsLab. Very few targeted students took advantage of this resource; therefore, we were unable to evaluate the effectiveness of this strategy. Large numbers of targeted students failed to participate at each step of the process. More than one half did not complete the Diagnostic test (i.e., component 3), which is required to identify areas of weakness. Among students who did take the Diagnostic test, more than one half did not register for MyFoundationsLab. Among students who did register, one third never logged in again. Finally, among the relatively few targeted students (about 200) who did utilize MyFoundationsLab, the average time spent on one subject area was two hours, which is a fairly modest amount of preparation.

Students need the ACCUPLACER Diagnostic test to gain access to MyFoundationsLab. Moreover, completing the Diagnostic test has other benefits to students and school staff members; recent research confirmed that student scores on the Diagnostic test are a significant predictor of performance on the ACCUPLACER placement test for MCPS students (Liu & Wade, 2012). Student scores on HSA and the Grade 10 Preliminary SAT/National Merit Scholarship Qualifying Test (PSAT/NMSQT) also are significant predictors of ACCUPLACER placement scores.

Recommendations

The following recommendations are presented in order of importance. As discussed above, the weakest area of implementation concerned student preparation for the ACCUPLACER placement test. Therefore, the goal of the first five recommendations is to increase the amount of time students spend on MyFoundationsLab.

Increase the number of students who complete the ACCUPLACER Diagnostic test.

- Encourage schools to carefully plan the schedule for completing the ACCUPLACER Diagnostic test; students need several hours in a computer lab with proctors. Be mindful of what else is going on with students (e.g., day off from school, interims).
- Consider omitting component 2, the fall/winter ACCUPLACER test, and strongly encourage schools to implement the other four components. This approach would save time, and, because it includes the ACCUPLACER Diagnostic test, would identify needed interventions and give students experience in taking an ACCUPLACER test.

Increase the number of students who register for MyFoundationsLab.

- Advise schools to have a staff member complete the registration process for students or to carefully supervise students during the registration process and confirm completion.
- Work with the vendor to simplify the registration process and to clarify characters in the code (e.g., letter “O” or the number “0”).

Provide more time, structure, and support for students by offering an ACCUPLACER preparation class.

- Provide a for-credit class or other structured opportunity, such as an after school club, Saturday sessions, or a unit within another class, focused on MyFoundationsLab where teachers may support and monitor student’s progress and provide review sessions.

Differentiate student supports for MyFoundationsLab based on the results of the fall/winter ACCUPLACER test or the Diagnostics test.

- Offer MyFoundationsLab as an independent study only to students whose scores are close to the cut off or who only have a few topics to review. Support these students with opportunities to work on the intervention before, during, and after the school day and with reminders.
- Focus program resources (e.g., attending classes or review sessions, completing ACCUPLACER Diagnostic) on students who are potentially within reach of the cut off, recognizing that developmental courses in college may be appropriate for students who have too much material to master.

Begin the HSAP program in Grade 11.

- Consider starting the HSAP program during junior year, so that students have more time to remedy their weaknesses.
- Combine the earlier start with differentiation of services (as described above) and an expanded target (as described below). Advise schools that staff members may use HSA and Grade 10 PSAT scores to estimate performance on the ACCUPLACER placement test when considering students for the program.

- Emphasize to students that schools other than Montgomery College require the ACCUPLACER (or a similar) placement test and that students should keep Montgomery College as an option, until admissions and financial aid decisions are final.

Continue targeting students.

- Encourage schools to continue current approaches to selecting targeted students.
- Consider expanding the target to all students who lack SAT or ACT scores at the levels that are considered college ready, because most Maryland community colleges and state universities use the ACCUPLACER placement test.

Improve delivery of information about ACCUPLACER.

- Encourage schools to continue informing students (and parents) about the key purpose of the ACCUPLACER placement test and to put more emphasis on clarifying that Montgomery College does not use ACCUPLACER test scores for other purposes (i.e., award college credit, admissions decisions). Unlike the information about format and rules, students cannot acquire information about the test's purpose by completing it.
- Broaden the availability of information about the ACCUPLACER placement test by encouraging schools to include such information on their websites.

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